RICOH NC5006

MODEL

SERVICE MANUAL

SECTION 1

OVERALL MACHINE INFORMATION

1. SPECIFICATIONS

Specifications are subject to change without notice.

Configuration: Console

Copy Process: Dry electrostatic transfer system

Resolutions: 400 dpi

Gradations: 256 gradations

Original Type: Sheet/book, object

Original Size: Maximum: A3 (lengthwise), 11" x 17" (lengthwise)

Original Alignment: Rear-left corner

Copy Paper Weight:
- Paper Tray: 64 - 104.7g/m^2 or 17 - 28 lb
- Bypass Feed Tray: 64 - 157 g/m^2 or 17 - 42 lb

NOTE: With paper heavier than 104.7g/m^2 or 28 lb, use the bypass feed tray and select Thick Paper mode.

Available Copy Paper Size:

Tray	Paper Direction	A4/A3 version	LT/DLT version
1st Tray	Lengthwise	A3, A4, 8 1/2" x 13" (F4), 8 1/4" x 13"	11" x 17"(DLT), 11" x 15", 10" x 14" , 8 1/2" x 14"(LG), 8" x 13"(F), 8 1/2" x 11"(LT), 8" x 10 1/2", 8" x 10"
	Sideways	A4, A5	11" x 8 1/2"(LT), 8 1/2" x 5 1/2"(HLT)
2nd/ 3rd Tray	Lengthwise	A3, B4, A4, B5, A5, 11" x 17"(DLT), 11" x 15", 10" x 14", 8 1/2" x 14"(LG), 8 1/2" x 13"(F4), 8 1/4" x 13", 8" x 13"(F), 8 1/2" x 11"(LT), 8" x 10 1/2", 8" x 10", 5 1/2" x 8 1/2"(HLT)	
	Sideways	A4, B5, A5, 11" x 8 1/2"(LT), 8 1/2" x 5 1/2"(HLT)	
Bypass Feed Tray	Lengthwise	A3, B4, A4, B5, A5, B6, A6	11" x 17" (DLT), 10" x 14", 8 1/2" x 11" (LT), 8" x 13" (F), 5 1/2" x 8 1/2" (HLT)
	Sideways	A4, B5, A5, B6, 8 1/2" x 11"	8 1/2" x 11" (LT) 5 1/2" x 8 1/2" (HLT)
	Odd paper size	Horizontal direction: 148 – 432 mm or 5.8" – 17.0" Vertical direction: 100 – 297 mm or 3.9" – 11.7"	

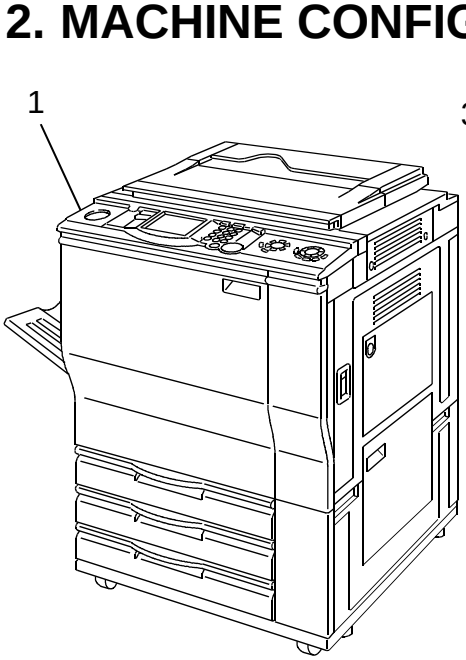
Warm-up Time:	About 8.5 minutes (at 20°C or 68°F)
First Copy Time: (A4 or 8 1/2" x 11" sideways)	• Full Color (4 scans): 15.5 seconds • Single Color: Black. Yellow, Magenta, Cyan: 9.0 seconds Red, Green, Blue, Orange, Light Green: 11.0 seconds **NOTE:** 1) When selecting OHP/Thick Paper modes, copying speed is reduced. 2) After changing some modes, the first copy time will take longer than usual.
Copying Speed: (Standard modes)	• Full Color (4 scans): A4 or 8 1/2" x 11" sideways: 6 copies/minute A3 or 11" x 17": 3 copies/minute • Single Color (Black, Yellow, Magenta, Cyan): A4 or 8 1/2" x 11" sideways: 31 copies/minute A3 or 11" x 17": 15 copies/minute • Single Color (Red, Green, Blue, Orange, Light Green): A4 or 8 1/2" x 11" sideways: 10 copies/minute A3 or 11" x 17": 5 copies/minute **NOTE:** When selecting OHP/Thick Paper modes, copying speed is reduced.
Non-reproduction Area:	• Leading edge: 5±2 mm or 0.2"±0.08" • Side: 2±2 mm or 0.08"±0.08", Total less than 4 mm or 0.16" • Trailing edge: 2±2 mm or 0.08"±0.08"
Copy Number Input:	Number keys, 1 to 99
Automatic Reset:	1 minute standard setting; can also be set to 10 to 900 seconds in 1 second steps, or to no auto reset.
Paper Feed:	Paper Tray x 3 (500 sheets of paper each) Bypass Feed Tray (50 sheets of paper with paper lighter than 104.7g/m^2 or 28 lb)

Copy Tray Capacity:	100 sheets of paper
Toner Replenishment:	Bottle type (340g/bottle)
Reproduction Ratio:	• A4/A3 version: 25%, 50%, 65%, 71%, 75%, 82%, 93%, 100% (Full SIze), 115%, 122%, 141%, 200%, 400% + User ratio x 2 • LT/DLT version: 25%, 50%, 65%, 74%, 77% 85%, 93%, 100% (Full Size), 121%, 129%, 155%, 200%, 400% + User ratio x 2
Zoom:	From 25% to 400% in 1% steps
Power Source:	115 V 60 Hz, more than 12 A (for NA) 220 ~ 240 V 50/60 Hz, more than 7 A (for EU and AA)
Power Consumption: (Copier only)	• Maximum: 1.4 kW • Warm-up: 1.25 kW • Stand-by: 0.5 kW • Copy Cycle: 1.15 kW
Noise Emission	• Maximum: Copier Only: less than 62 dB (A) Full System: less than 69 dB (A) • Stand-by: Copier Only: less than 40 dB (A) Full System: less than 44 dB (A) • Copy-cycle: Copier Only: less than 56 dB (A) Full System: less than 58 dB (A)
Dimensions (W x D x H):	• Copier Only: 692 x 685 x 1026 mm or 27.3" x 27.0" x 40.4" • Full System*: 1524 x 685 x 1099 mm or 60.0" x 27.0" x 43.2" (*= Copier + Dual Job Feeder + Sorter + Display Editor + Holder)
Weight:	• Copier Only: 200 kg or 440.8 lb

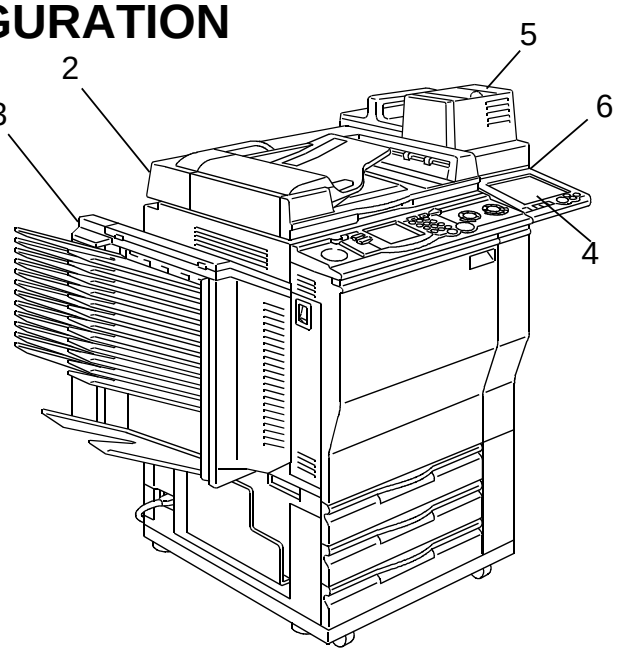
Optional Equipment:

- Dual Job Feeder
- Sorter
- Sorter Adapter
- Projector Unit
- Display Editor
- Holder for Projector Unit/Display Editor
- Key Counter

2. MACHINE CONFIGURATION



<Copier>

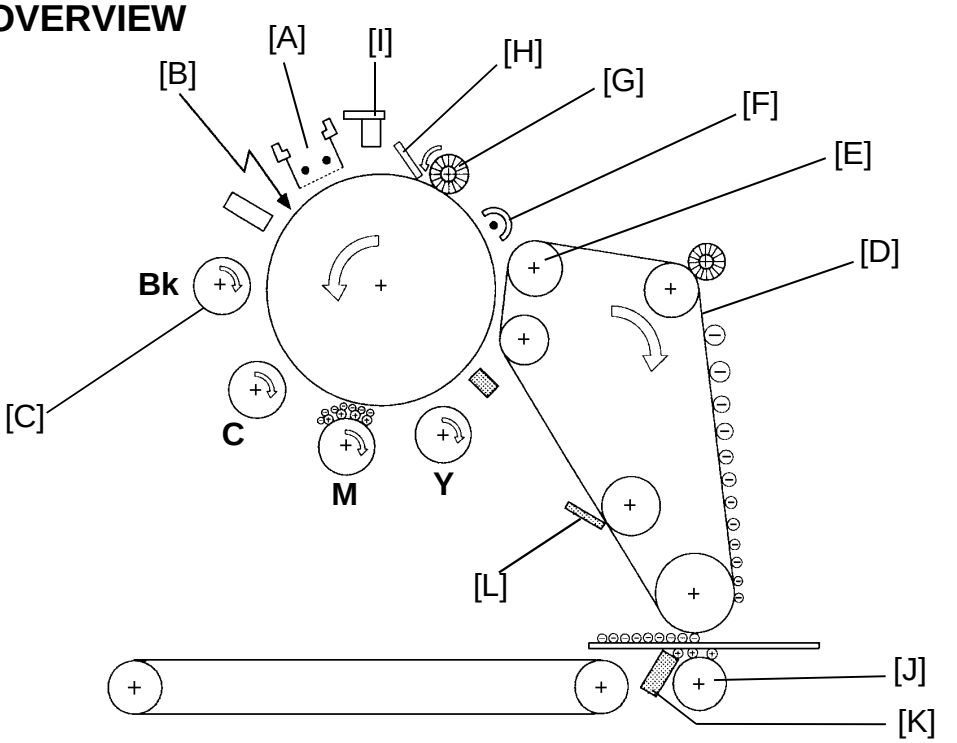


<Full System>

Item	Machine Code	Note	No.
Copier	A109	• English language ROM is installed on –17/10/22 machines • No language ROM is installed on –27/26 machines.	1
Dual Job Feeder	A376	• Common with A095/A096 copiers.	2
10-bin Sorter	A511	• Common with A099 copier. • Sorter adapter (A527) is required for installation.	3
Display Editor	A997	• Holder (A702) is required for installation.	4
Film Projector Unit	A998	• Holder (A702) is required for installation.	5
Holder	A702	• Holder can be installed independently as an original table.	6
Language ROM (for operation panel)	A544	• The following languages are available: English (A4), German, French, Italian, Spanish, (Universal)	—

3. COPY PROCESS

3.1 OVERVIEW



This copier scans the original image four times to develop the latent image on the OPC drum with black, cyan, magenta, and yellow toner.

First, the drum is negatively charged by the charge corona unit [A] and is exposed by the laser beam [B] for producing the black latent image. Then the latent image is developed with negatively charged black toner by the black development section [C]. (Refer to the development process description in section 2, 3.2)

When the developed black image has almost reached the transfer belt [D], the transfer belt contacts the drum and starts rotating at the same peripheral speed of the drum (180 mm/sec). A high positive voltage is applied to the belt bias roller [E] to attract black toner onto the transfer belt electrically.

When the whole black image is transferred to the transfer belt, the belt releases from the drum and rotates the same amount in reverse.

After the black toner transfer to the transfer belt, the PCC (pre-cleaning corona) [F] applies a strong ac corona discharge with a negative bias to the drum surface. This makes it easier for the cleaning brush [G] to remove the remaining toner from the drum surface.

Then the drum surface is cleaned by the cleaning brush and the cleaning blade [H]. The quenching lamp [I] exposes the drum to electrically neutralize the drum surface.

Next the charged drum is exposed by the laser beam again for producing the cyan latent image. The image is developed with cyan toner and it is transferred to the transfer belt aligned with the black image.

The same image transfer process is performed for magenta and yellow toners, producing the full color image on the transfer belt.

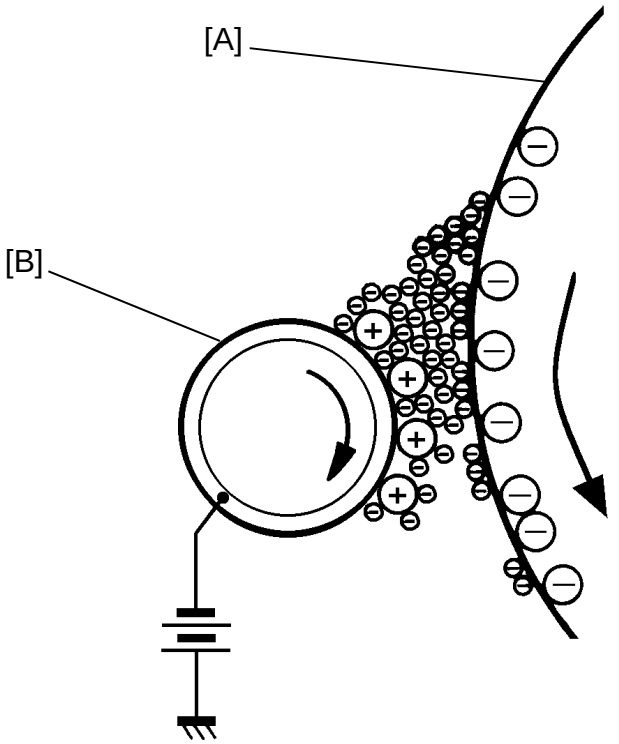
Then, the transfer roller [J] contacts the transfer belt and starts rotating at the same speed as the transfer belt (180 mm/sec for normal paper mode, 90 mm/sec for thick paper / OHP mode). Copy paper is fed to the nip band between the transfer belt and transfer roller aligned with the lead edge of the full color image.

A high positive voltage is applied to the transfer roller to attract toner onto the paper.

A high ac voltage is applied to the discharge plate [K]. This discharges the remaining electricity on the paper to help the paper separate from the transfer belt.

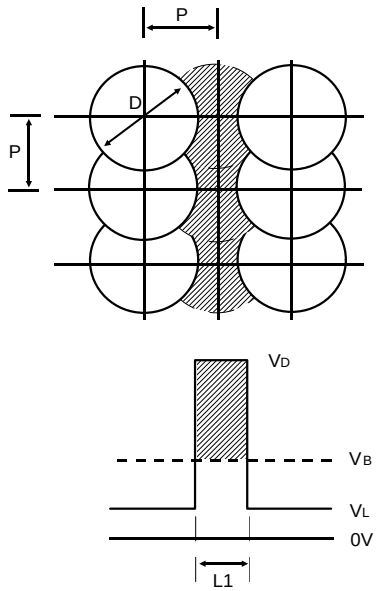
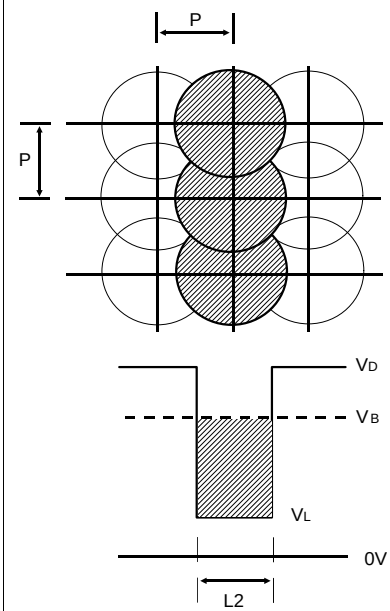
After the toner is transferred to the paper, the belt cleaning blade [L] contacts the transfer belt to clean its surface.

3.2 DEVELOPMENT PROCESS

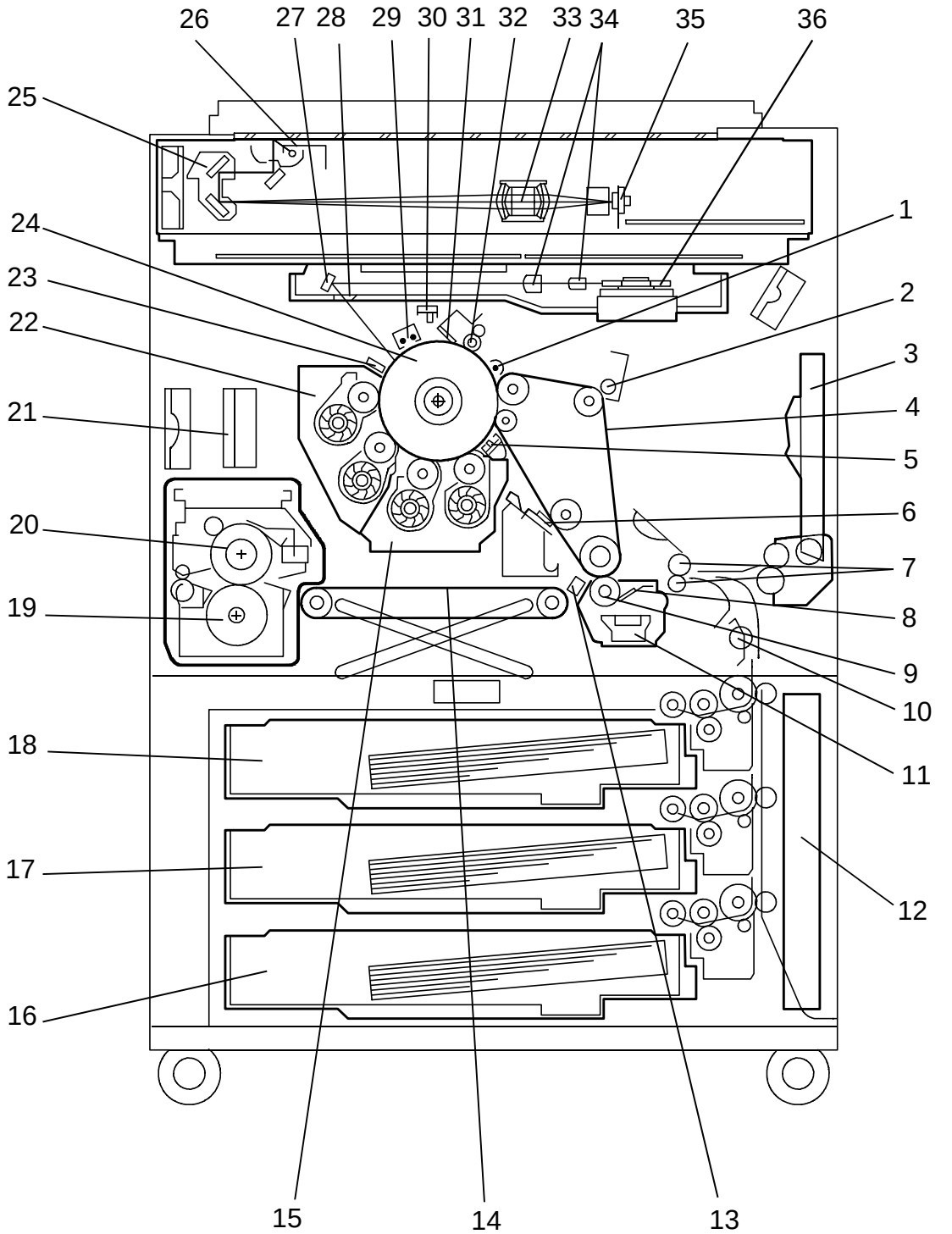


A: OPC Drum
B: Development Roller

Most copiers use either a positively charged photoconductor and negatively charged toner or a negatively charged photoconductor and positively charged toner. However, this machine uses process where both the drum surface charge and the toner charge are negative. This process has certain advantages for laser printing, but some copy problems are exactly opposite from what many copier service people have intuitively come to expect. The table on the following page gives some of the differences between the standard process and the this model's process.

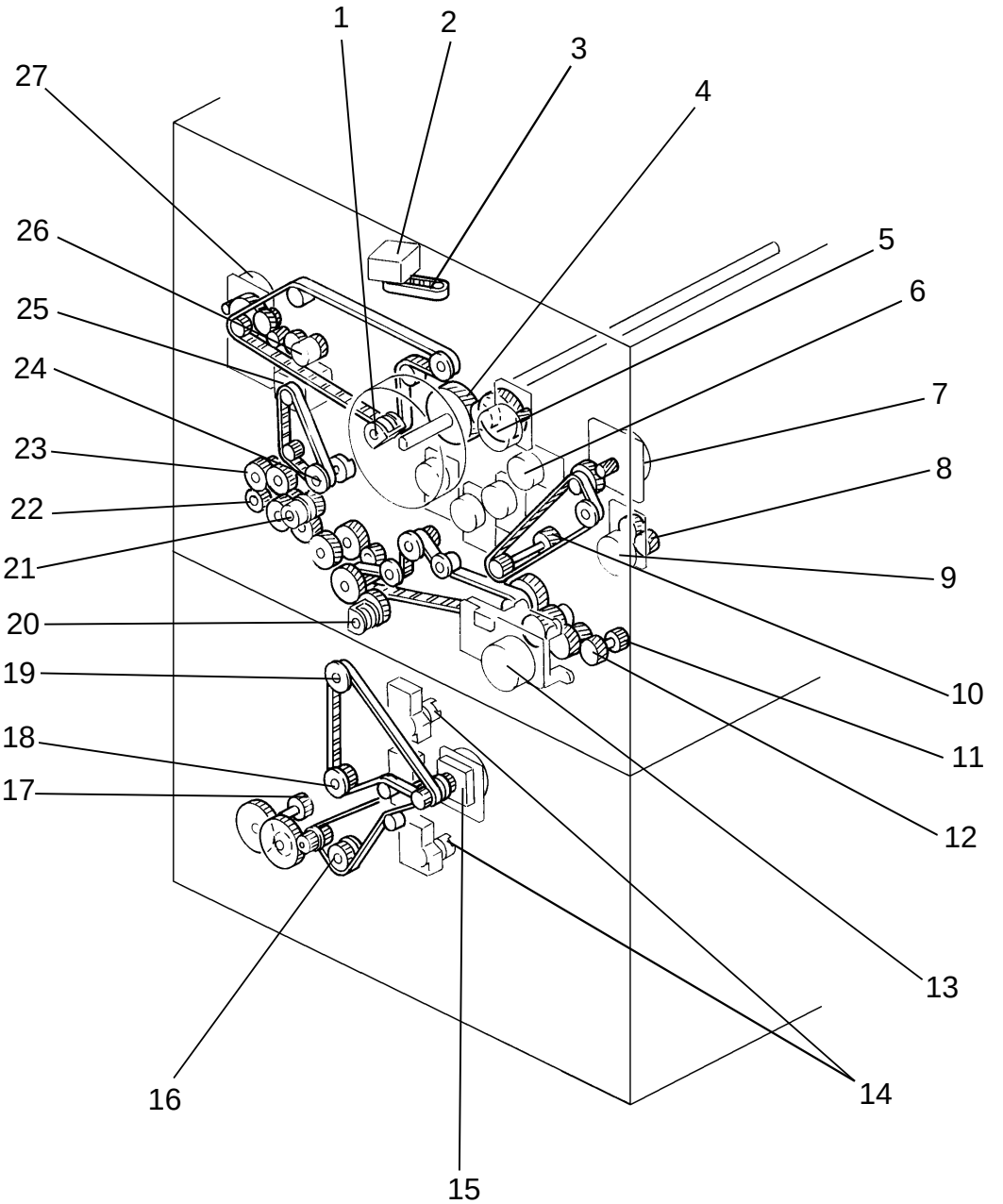
	Standard Copier Process		This Copier's Process
Type of Laser	He-neon (gas, 630 nm)	He-neon or semiconductor	Semiconductor (780 nm)
Photoconductor	Se Drum	OPC	OPC
Charge Corona	Positive	Negative	Negative
Carrier Charge	Positive	Negative	Positive
Toner Charge	Negative	Positive	Negative
Photoconductor Exposure	Background exposure (write to white) ⇒ Positive latent image		Image exposure (write to black) ⇒ Negative latent image
P: Pitch (1/400" in this model) D: Laser beam diameter V_D: Drum potential (Dark) V_B: Bias voltage V_L: Drum potential (Light) L1, L2: Line width (L1 < L2 for the same laser beam diameter)			
Copy Problems			
1. No photoconductor charge	White copy		Black solid copy
2. Low photoconductor charge	Low image density		Dirty background
3. High development bias	Low image density		Dirty background
4. Low development bias	Dirty background		Low image density
5. Stained toner shield glass	Black stripes		White stripes

4. MECHANICAL COMPONENT LAYOUT



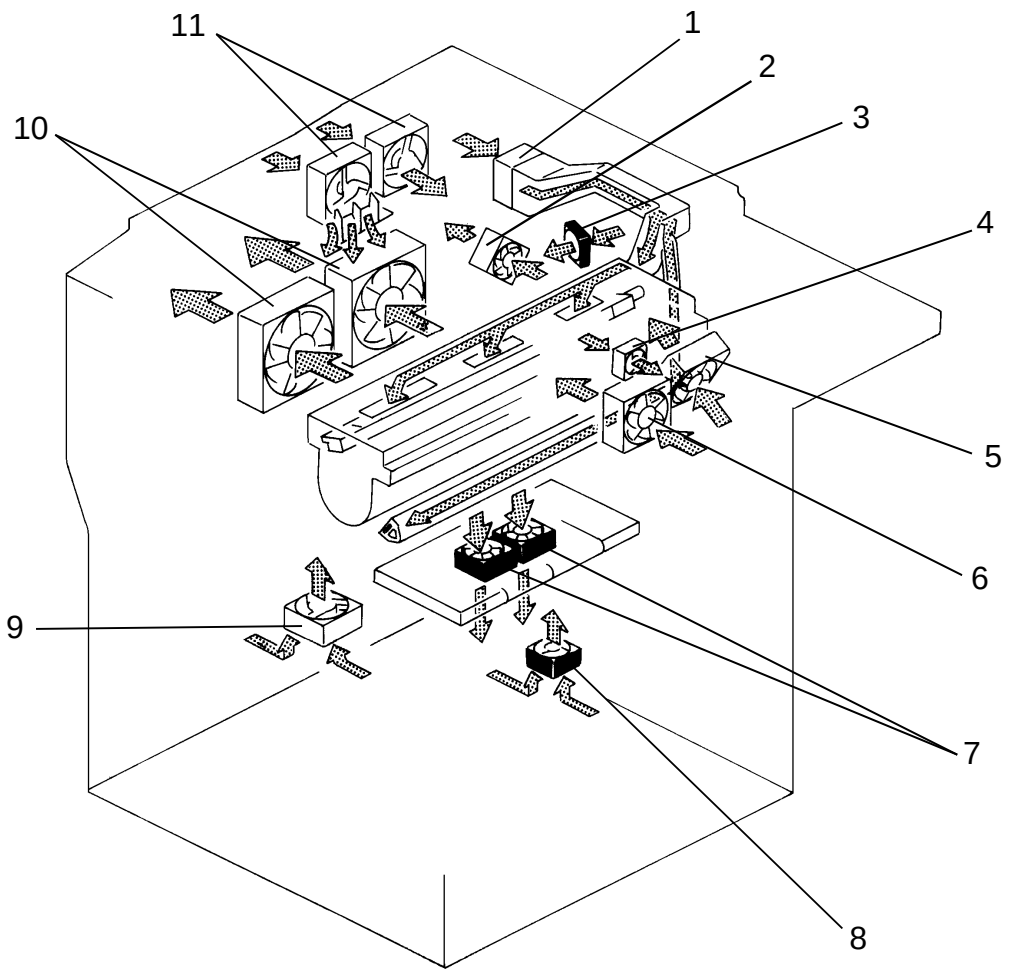
1. Pre-cleaning Corona Unit
2. Lubricant Brush
3. By-pass Feed Table
4. Transfer Belt
5. ID Sensor
6. Belt Cleaning Blade
7. Registration Rollers
8. Transfer Roller Blade
9. Transfer Roller
10. Relay Roller
11. Toner Catch Pan
12. Toner Collection Bottle
13. Paper Discharge Plate
14. Transport Belt
15. Magenta/Yellow Development Unit
16. 3rd Paper Tray
17. 2nd Paper Tray
18. 1st Paper Tray
19. Pressure Roller
20. Hot Roller
21. Development Ozone Filter
22. Black/Cyan Development Unit
23. Drum Potential Sensor
24. OPC Drum
25. 2nd Scanner
26. 1st Scanner
27. Drum Mirror
28. Toner Shield Glass
29. Charge Corona Unit
30. Quenching Lamp
31. Drum Cleaning Blade
32. Cleaning Brush
33. Lens
34. f-theta Lenses
35. CCD Board
36. Polygon Mirror

5. DRIVE LAYOUT



1. Transfer Belt Position Clutch
2. Scanner Motor
3. Scanner Drive Pulley
4. Drum Drive Gear
5. Drum Motor
6. Bk-Sleeve Motor
7. Color-Development Drive Motor
8. Bk-Development Drive Gear
9. Bk-Development Drive Motor
10. Color-Development Drive Gear
11. Transport Unit Drive Gear
12. Fusing Unit Drive Gear
13. Transport Motor
14. Tray Lift Motors
15. Paper Feed Motor
16. 3rd Paper Feed Drive Pulley
17. Toner Collection Tank Drive Gear
18. 2nd Paper Feed Drive Pulley
19. 1st Paper Feed Drive Pulley
20. Transfer Roller Position Clutch
21. Registration Clutch
22. Relay Roller Drive Gear
23. By-pass Feed Drive Gear
24. Transfer Belt Drive Pully
25. Transfer Belt Motor
26. Lubricant Brush Clutch
27. Cleaning Motor

6. AIR FLOW



1. Charge Inlet Fan
2. Fusing Exhaust Fan
3. LD Cooling Fan
4. Optics Exhaust Fan
5. IPU Cooling Fan
6. Polygon Motor Cooling Fan
7. Transport Fans
8. DC Power Supply Cooling Fan
9. Inner Cooling Fan
10. Development Exhaust Fans
11. Optics Cooling Fans

7. ELECTRICAL COMPONENT DESCRIPTIONS

Refer to the electrical component layout on the water proof paper in the pocket for symbols and index numbers.

Symbol	Name	Function	Index No.
Printed Circuit Boards			
PCB 1	DC power supply	Provides dc power.	18
PCB 2	Lamp regulator	Provides dc power for the exposure lamp.	1
PCB 3	AC drive	Provides ac power for the fusing and pressure lamps.	9
PCB 4	High voltage supply - C/G	Supplies high voltage to the charge corona and grid plate.	10
PCB 5	High voltage supply - B	Supplies high voltage to the Y/M/C/Bk sleeve rollers as development bias or to the OPC drum for drum potential sensor calibration.	23
PCB 6	High voltage supply - T1/Pcc/BR	Supplies high voltage to the belt bias roller, pre-cleaning corona, and cleaning bias roller.	11
PCB 7	High voltage supply - T2	Supplies high voltage to the transfer roller.	15
PCB 8	High voltage supply - D	Supplies high voltage to the paper discharge plate.	20
PCB 9	Main control	Controls all copier functions both directly or through other control boards.	14
PCB10	Interface 1	Interfaces the input/output of electrical components with the main control board.	19
PCB11	Interface 2	Interfaces the input/output of electrical components with the main control board.	16
PCB12	Transfer belt motor drive	Controls the speed and direction of the transfer belt motor.	13

Symbol	Name	Function	Index No.
PCB13	Paper feed interface	Interfaces the input/output of electrical components in the paper supply unit with the main control board.	17
PCB14	Noise filter	Removes electrical noise.	21
PCB15	ID sensor	Detects the density of the ID sensor pattern.	120
PCB16	Operation panel	Controls the touch panel display and monitors the key matrix.	22
PCB17	Polygon motor drive	Controls the polygon motor speed.	7
PCB18	CCD	Converts the light reflected from the original into analog electrical signals for the three basic colors (R/G/B).	8
PCB19	Scanner control	Processes R/G/B video signals from the CCD board to be sent to the IPU board.	6
PCB20	Scanner drive	Interfaces the input/output electrical components in the optics cavity with the scanner control board.	3
PCB21	IPU board	Processes R/G/B video signals from the scanner control board and sends Y/M/C/Bk video signals to the LD unit.	2
PCB22	IPU interface	Changes the clock frequency of R/G/B video signals and also sends the synchronizing signal for the polygon motor.	4
PCB23	Option interface	Interfaces the display editor and film projector unit with the main control board and IPU board.	12
PCB24	LD drive	Generates the laser beam to the drum for printing the image.	5
PCB25	Laser synchronizing detector	Detects the laser beam to control the start timing of main scan writing.	62
PCB26	Paper width detecting	Detects paper width in the by-pass feed table.	121

Symbol	Name	Function	Index No.
Motors			
M 1	Bk - Development drive	Drives the Bk dual mixing roller.	42
M 2	C - Sleeve	Turns the C - sleeve roller in both directions.	28
M 3	M - Sleeve	Turns the M - sleeve roller in both directions.	32
M 4	Y - Sleeve	Turns the Y - sleeve roller in both directions.	31
M 5	Drum	Turns the OPC drum.	25
M 6	Bk - Sleeve	Turns the Bk - sleeve roller in both directions.	27
M 7	Transport	Drives the transport unit, fusing unit, transfer roller, and transfer belt cleaning unit.	41
M 8	Color - Development drive	Drives the Y/M/C - dual mixing rollers simultaneously.	24
M 9	Cleaning	Drives the drum cleaning brush, the lubricant brush, and the transfer belt release mechanism.	29
M10	Scanner	Drives the 1st and 2nd scanners.	26
M11	Transfer belt	Turns the transfer belt drive roller in both directions.	30
M12	Paper feed	Drives the paper feed sections and the cam gear for the toner collection bottle.	36
M13	Polygon	Turns the polygon mirror.	43
M14	Bk - Toner supply	Drives the Bk - toner transport and agitation mechanism.	40
M15	C - Toner supply	Drives the C - toner transport and agitation mechanism.	39
M16	M - Toner supply	Drives the M - toner transport and agitation mechanism.	38
M17	Y - Toner supply	Drives the Y - toner transport and agitation mechanism.	37
M18	1st tray lift	Lifts the 1st tray bottom plate.	33
M19	2nd tray lift	Lifts the 2nd tray bottom plate.	34
M20	3rd tray lift	Lifts the 3rd tray bottom plate.	35

Symbol	Name	Function	Index No.
Fan Motors			
FM 1	Fusing exhaust	Removes the heat from around the fusing unit.	45
FM 2	Charge inlet	Provides air flow around the drum charge section.	44
FM 3	Inner cooling	Provides air flow around the toner tank and development units.	53
FM 4	IPU cooling	Provides air flow around the IPU board.	48
FM 5	Polygon motor cooling	Provides air flow around the polygon motor.	49
FM6/7	Transport	Sucks in air to attract copy paper on the transport belts.	51/50
FM8/9	Development exhaust	Removes air and heat from around the drum and development units.	54/55
FM10	Optics exhaust	Exhausts air from under the lens housing cover.	47
FM11	LD cooling	Provides air flow to the LD unit.	46
FM12/13	Optics cooling	Blows air into the optics cavity.	56/57
FM14	DC power supply cooling	Provides air flow to transformers and radiation plates on the dc power supply board.	52
Sensors			
S 1	By-pass feed table	Detects if the by-pass feed table is open or closed.	69
S 2	Oil end	Detects if the silicon oil tank is nearly empty or not.	86
S 3	Exit	Detects misfeeds.	91
S 4	Transfer belt position	Detects if the transfer belt is in contact with the drum or not.	63
S 5	Humidity	Detects humidity and temperature to calculate the absolute humidity.	84
S 6	Drum potential	Detects the drum surface potential.	118
S 7	M - Toner density	Detects the toner density in the M - development unit.	89

Symbol	Name	Function	Index No.
S 8	Y - Toner density	Detects the toner density in the Y - development unit.	88
S 9	Bk - Toner density	Detects the toner density in the Bk - development unit.	92
S10	C - Toner density	Detects the toner density in the C - development unit.	90
S11	Transport	Detects misfeeds.	87
S12	Registration	Detects the lead edge or trailing edge of copy paper to control the rotation of the paper feed and registration rollers.	70
S13	Registration guide set	Detects if the registration guide plate is set or not.	66
S14	Transfer roller position	Detects if the transfer roller is in contact with the transfer belt or not.	68
S15	By-pass paper end	Detects if there is paper on the By-pass feed table or not.	67
S16	By-pass length	Detects if paper on the by-pass feed table is longer than A4 (Letter) sideways or not.	65
S17	Toner overflow	Detects if the toner collection bottle is full or not.	82
S18	1st lift	Detects the height of the paper stack in the 1st paper tray to stop the 1st tray lift motor.	72
S19	2nd lift	Detects the height of the paper stack in the 2nd paper tray to stop the 2nd tray lift motor.	73
S20	3rd lift	Detects the height of the paper stack in the 3rd paper tray to stop the 3rd tray lift motor.	76
S21	1st paper end	Detects if there is paper in the 1st paper tray or not.	85
S22	2nd paper end	Detects if there is paper in the 2nd paper tray or not.	83
S23	3rd paper end	Detects if there is paper in the 3rd paper tray or not.	80

Symbol	Name	Function	Index No.
S24	1st paper feed	Controls the 1st paper feed clutch off/on timing and the 1st pick-up solenoid off timing.	78
S25	2nd paper feed	Controls the 2nd paper feed clutch off/on timing and the 2nd pick-up solenoid off timing.	81
S26	3rd paper feed	Controls the 3rd paper feed clutch off/on timing and the 3rd pick-up solenoid off timing.	79
S27	Original length - 1	Detects original length.	61
S28	Original length - 2	Detects original length.	59
S29	Original width	Detects original width.	98
S30	Scanner unit lift	Detects if the scanner unit is lifted or not.	60
S31	Platen cover position	Informs the CPU if the platen cover is up or down (related to APS/ARE function).	58
S32	Scanner HP	Informs the CPU if the 1st and 2nd scanners are at the home position or not.	99
Switches			
SW1/2/3/4	Front door safety	Cuts the ac power line through RA1 and detects if the front door is open or not.	94/95/ 96/97
SW5/6	Vertical transport set	Cuts the ac power line through RA1 and detects if the vertical transport guide is open or not.	74/75
SW 7	Main	Provides power to the copier. When it is at stand by position, the electrical power is supplied only to the heaters (drum/optics anticondensation/tray/transfer belt).	93
SW 8	2nd tray set	Detects if the 2nd paper tray is set or not.	71
SW 9	3rd tray set	Detects if the 3rd paper tray is set or not.	77

Symbol	Name	Function	Index No.
SW10	1st paper size	Detects the paper size for the 1st paper tray and if the tray is set or not.	64
Magnetic Clutches			
MC1	Lubricant brush	Transmits the drive from the cleaning motor to the lubricant brush.	101
MC2	Transfer belt position	Controls the touch and release operation of the transfer belt by using the cleaning motor's drive.	100
MC3	By-pass feed	Starts paper feed from the by-pass feed table.	104
MC4	Registration	Drives the registration rollers.	103
MC5	Transfer roller position	Controls the touch and release operation of the transfer roller unit by using the transport motor's drive.	102
MC6	1st feed	Starts paper feed from the 1st paper tray.	106
MC7	2nd feed	Starts paper feed from the 2nd paper tray.	107
MC8	3rd feed	Starts paper feed from the 3rd paper tray.	108
Solenoids			
SOL 1	Cleaning entrance seal	Controls the touch and release operation of the cleaning entrance seal on the transfer belt cleaning unit.	115
SOL 2	Lubricant brush	Controls the touch and release operation of the lubricant brush.	117
SOL 3	Cleaning blade	Controls the touch and release operation of the belt cleaning blade.	116
SOL 4	By-pass pick-up	Controls the up/down movement of the pick-up roller for by-pass feed.	105

Symbol	Name	Function	Index No.
SOL 5	1st pick-up	Controls the up/down movement of the pick-up roller in the 1st feed station.	114
SOL 6	2nd pick-up	Controls the up/down movement of the pick-up roller in the 2nd feed station.	112
SOL 7	3rd pick-up	Controls the up/down movement of the pick-up roller in the 3rd feed station.	110
SOL 8	1st separation roller	Controls the up/down movement of the separation roller in the 1st feed station.	113
SOL 9	2nd separation roller	Controls the up/down movement of the separation roller in the 2nd feed station.	111
SOL10	3rd separation roller	Controls the up/down movement of the separation roller in the 3rd feed station.	109
Lamps			
L1	Fusing	Provides heat to the hot roller.	135
L2	Pressure roller	Provides heat to the pressure roller.	134
L3	Exposure	Applies high intensity light to the original for exposure.	122
L4	Quenching	Neutralizes any charge remaining on the drum surface after cleaning.	119
Heaters			
H1	Lower tray (option)	Turns on when the main switch is off to keep paper dry in the 3rd paper tray.	129
H2	Upper tray (option)	Turns on when the main switch is off to keep paper dry in the 1st and 2nd paper trays.	127

Symbol	Name	Function	Index No.
H3	Transfer belt	Turns on when the main switch is off to prevent moisture from forming on the transfer belt.	128
H4	Optics anti-condensation	Turns on when the main switch is off to prevent moisture from forming on the optics.	140
H5	Drum	Turns on when the main switch is off to prevent moisture around the drum.	124
Thermistors			
TH1	Fusing	Monitors the temperature of the hot roller.	126
TH2	Pressure roller	Monitors the temperature of the pressure roller.	133
Thermofuses			
TF1	Fusing	Opens the fusing lamp circuit if the fusing unit overheats.	125
TF2	Pressure roller	Opens the pressure roller lamp circuit if the fusing unit overheats.	132
Thermoswitch			
TS1	Optics	Opens the exposure lamp circuit if the 1st scanner overheats.	123
Counters			
CO1	Black total	Keeps track of the total number of scans for black development in both the black and color copy modes.	136
CO2	Full color total	Keeps track of the total number of scans for Yellow, Magenta, and Cyan developments in both the single and full color copy modes.	137

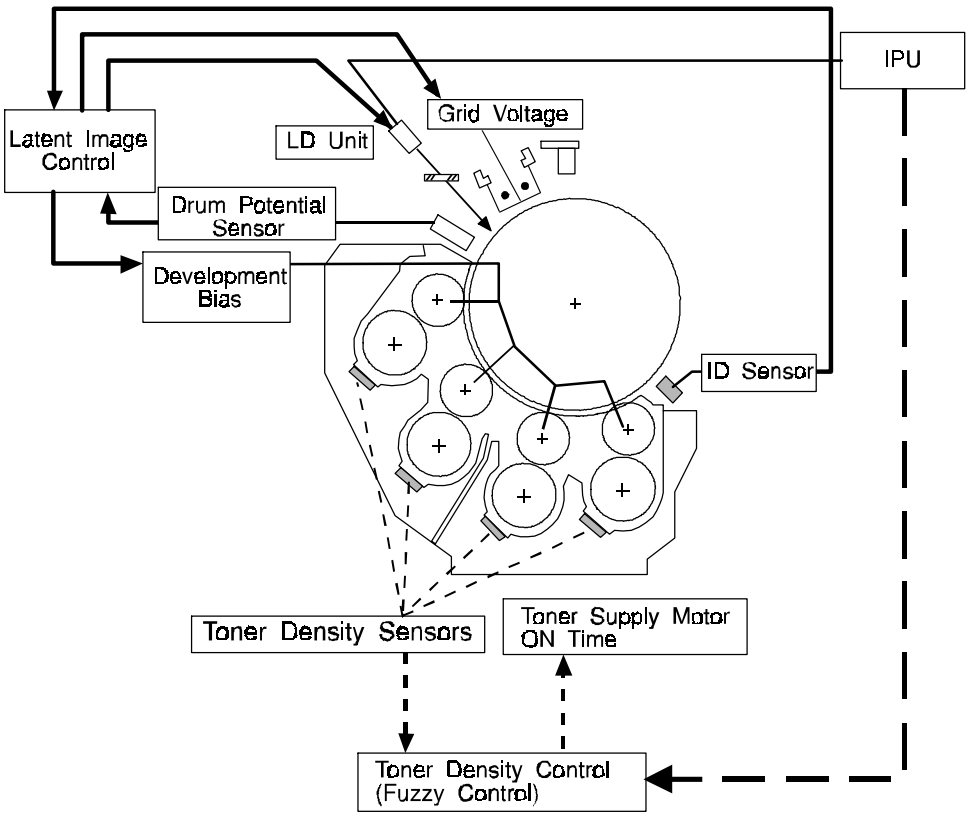
Symbol	Name	Function	Index No.
Others			
CB1	Circuit breaker	Provides back-up high current protection for the electrical components.	130
RA1	Main power relay	Controls main power.	138
NF1	Noise filter	Removes electrical noise.	131
CC1	Choke coil	Removes high frequency current.	139

SECTION 2

DETAILED SECTION DESCRIPTIONS

1. PROCESS CONTROL

1.1 OVERVIEW



This model uses two control methods. One compensates for variation in the drum potential and toner chargeability (latent image control) and the other controls the toner concentration and toner supply amount (toner density control).

1.1.1 Latent Image Control

<Factors to change the development potential>

After long usage following installation or PM, drum potential will gradually change due to the following factors:

- Dirty charge corona and grid plate
- Change of the drum characteristics

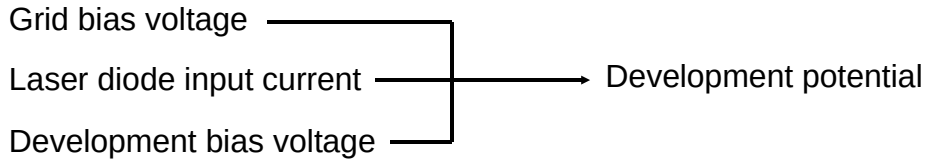
Due to changes in humidity conditions, the toner potential (chargeability) varies and affects the image density even if the toner concentration is kept constant.

- When humidity is low, toner chargeability increases resulting in lower image density.
- When humidity is high, toner chargeability decreases resulting in higher image density.

Also, after long usage following installation or PM, the surface of carrier particles is gradually coated with melted toner (filming). This decreases the toner chargeability.

<Methods to maintain the development potential constant>

In this copier, the change in drum potential is detected by the potential sensor and the change in the toner potential is detected by the ID sensor. The following items are controlled to maintain good copy quality.



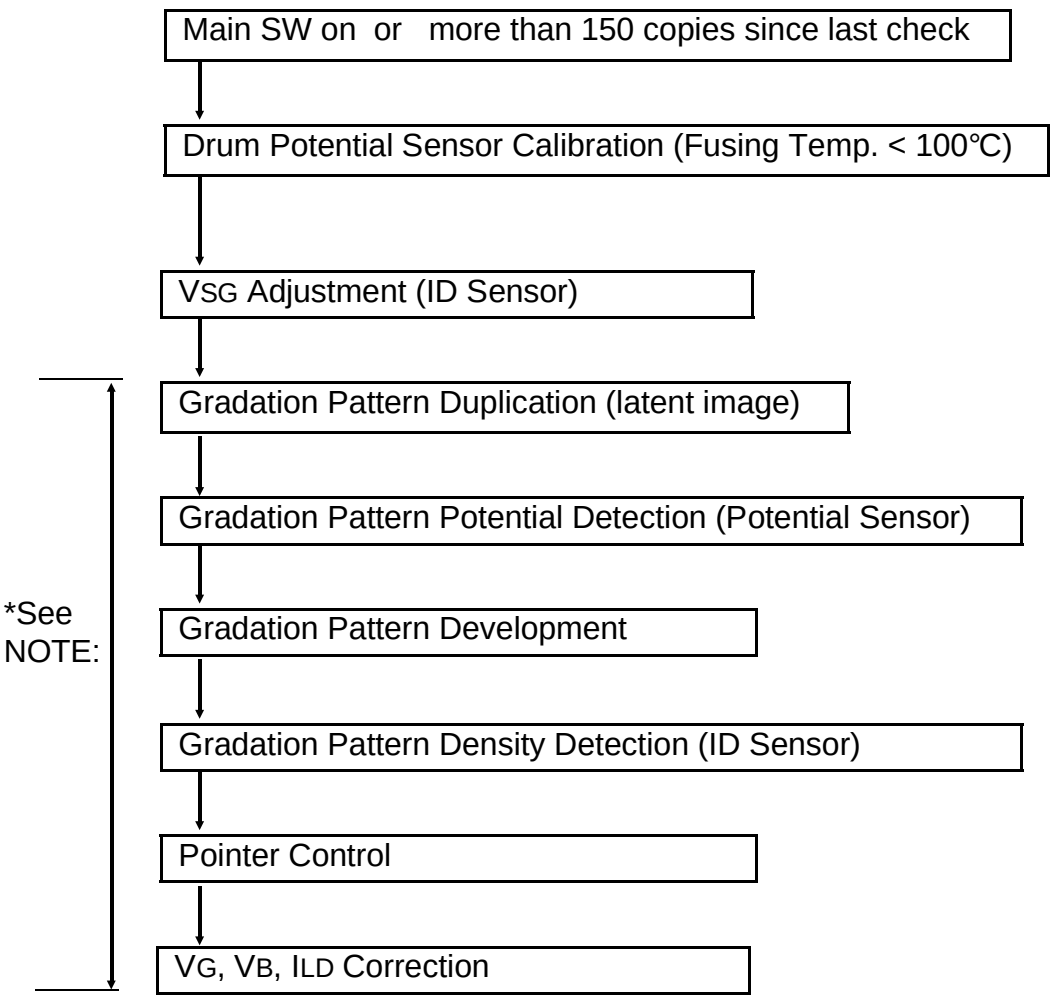
1.1.2 Toner Density Control

Toner density in the developer is controlled by the toner density sensor. Data from the toner density sensor is used to keep the toner concentration in the developer at a constant level. Neither the ID sensor nor the drum potential sensor affect the toner density control. This is different from previous models using TD sensors.

1.2 PROCESS CONTROL SELF CHECK

The following flow chart shows all the steps that will be performed under the following conditions:

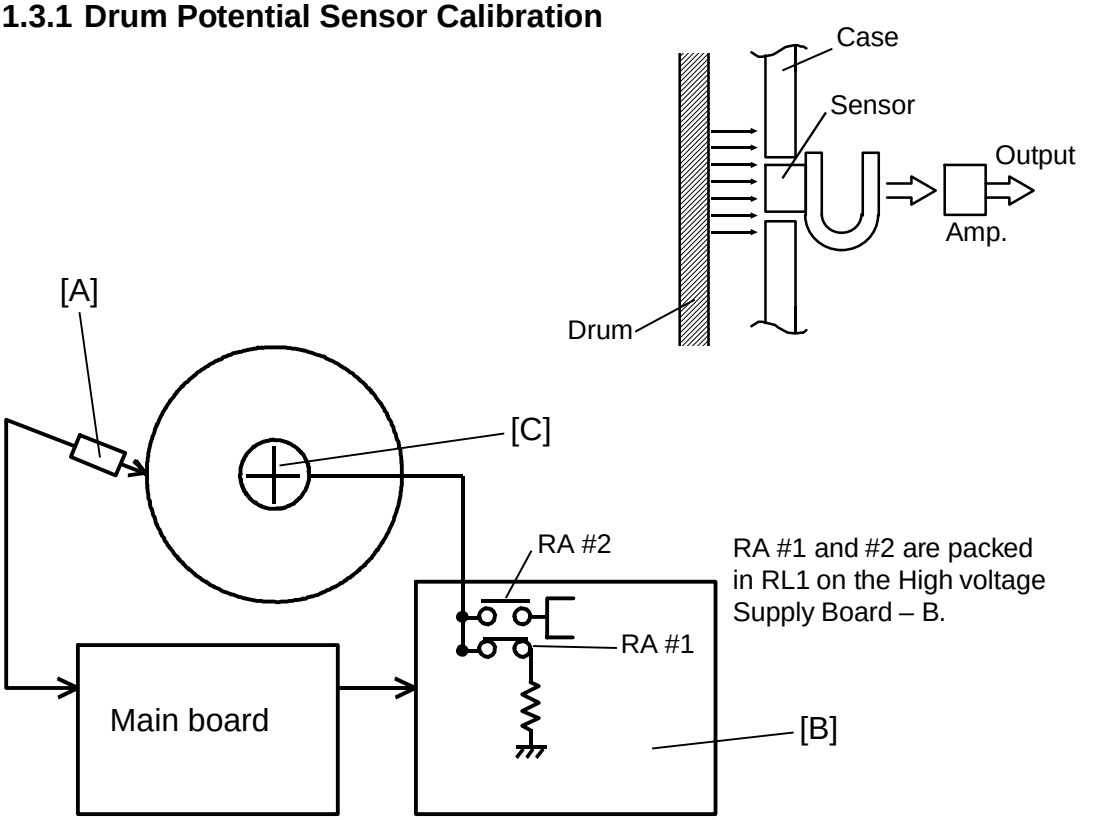
- Whenever the machine is turned on while the hot roller temperature is below 100°C.
- After the series of copy job is completed and more than 150 copies have been made since the last process control self check. This initializes all the process control settings.


Main SW on or more than 150 copies since last check
Drum Potential Sensor Calibration (Fusing Temp. < 100°C)
VSG Adjustment (ID Sensor)
Gradation Pattern Duplication (latent image)
Gradation Pattern Potential Detection (Potential Sensor)
Gradation Pattern Development
Gradation Pattern Density Detection (ID Sensor)
Pointer Control
VG, VB, ILD Correction
*See NOTE:

NOTE: Continue this procedure four times (Bk, C, M, Y)

1.3 LATENT IMAGE CONTROL

1.3.1 Drum Potential Sensor Calibration



The drum potential sensor [A] is located just above the development unit. The sensor has a detector which detects the strength of the electric field from the electric potential on the drum. The output of the sensor depends on the strength of the electric field.

Since the output of the sensor is affected by environmental conditions, such as temperature and humidity, the sensor output is calibrated during process control self check.

The High Voltage Supply Board - B [B] has two relay contacts. Usually RA #1 grounds the drum. However, during the self-check, the main CPU turns RA #2 on and RA #1 off and applies the voltage to the drum shaft [C].
In this condition, the OPC drum is isolated from the ground (floating).

By measuring the output of the drum potential sensor when -200V (V_{200}) or -800V (V_{800}) are applied to the drum, the sensor output is calibrated automatically. (The machine recognizes the relationship between actual drum potential and the potential sensor output.)

1.3.2 VSG Adjustment

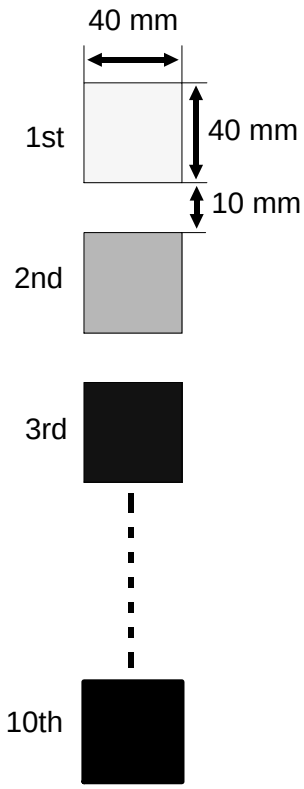
During drum conditioning, the ID sensor checks the bare drum's reflectivity and calibrates the output of the ID sensor to 4 ± 0.2V.

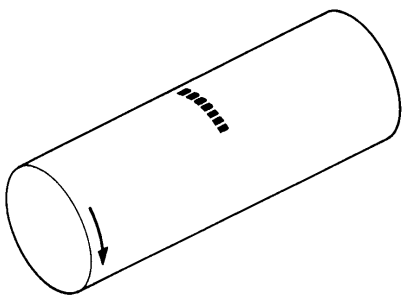
1.3.3 Gradation Patterns Detection

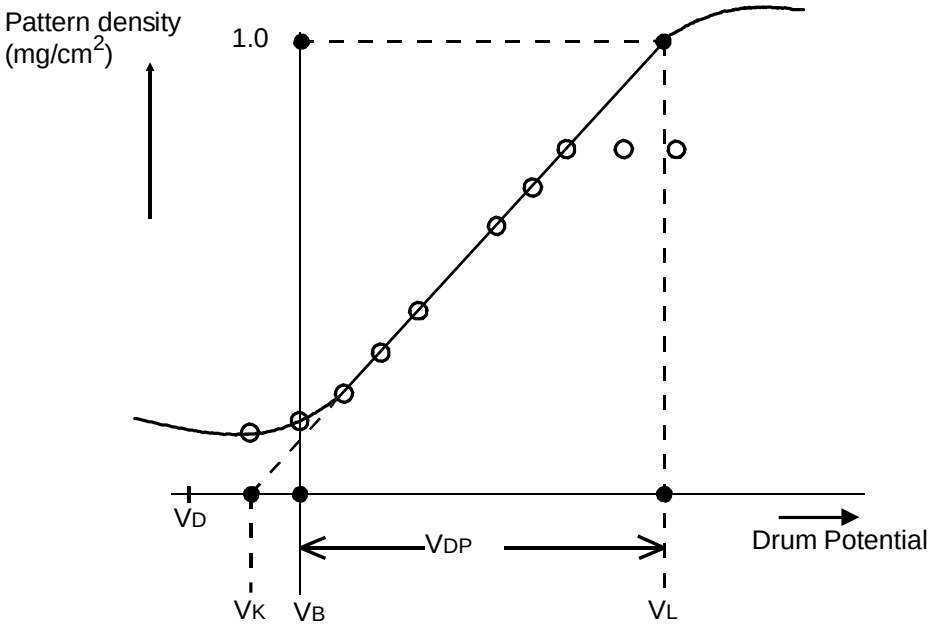
10 grades of latent gradation patterns are created for each color (Bk, C, M, Y) by changing the LD input current.

The drum potential sensor detects the potential for each pattern and the output is stored in memory. Then the latent gradation patterns pass the development unit and are developed. The ID sensor detects the density of the gradation patterns and the output is stored in memory.

[LD power level]







1.3.4 Pointer Control

The main CPU converts the gradation pattern density (ID sensor output) to the actual toner quantity on the pattern (mg/cm^2) based on a characteristics table stored in memory.
Then the potential sensor output and pattern density (mg/cm^2) for each of the 10 patterns are plotted as shown. The CPU approximates the line from the data and calculates the V_{DP}.
The inclination of this line is called the development gamma (γ) factor. It represents the characteristic between the drum potential and toner amount developed on the drum.

From the V_{DP}, the copier determines V_D (Drum potential made without exposure), V_B (Development bias), and V_L (Drum potential with strongest LD exposure). Each V_{DP} value points to a record containing the V_D, V_B, and V_L values deemed optimal by this copier's designers.

V_{DP}, V_D, V_B, and V_L have 20 sets of combination.

1.3.5 Confirmation Procedure

Using the selected V_D, V_B and V_L data, the darkest (V_L pattern: Pattern made with strongest LD exposure) and the lightest pattern (V_D pattern: Pattern made without exposure) are duplicated again. The potential sensor detects the potential of each pattern (V_D and V_L) to evaluate whether the drum potential for each pattern is within specification ($\pm$5 V from the target) or not.

If V_D is out of specification, V_G is shifted. Then the V_D is detected again.

The same is done for V_L with I_{LD}.

V_B is fixed at the value determined by the pointer control.

The above process continues until both V_D and V_L fall within specification.

1.3.6 Related Abnormal Conditions

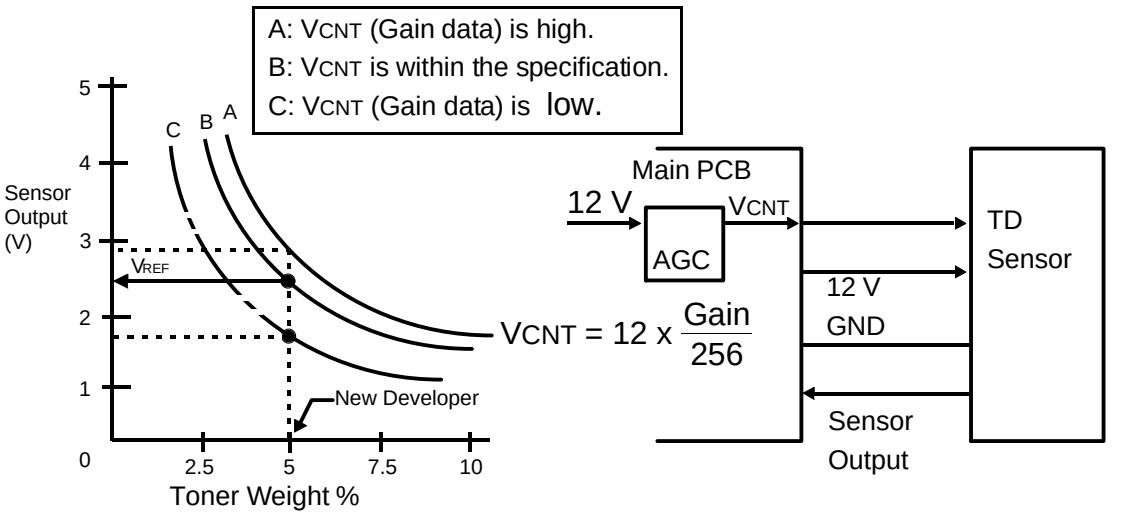
If V_{200} or V_{800} at drum potential sensor calibration is out of specification or if V_D or V_L do not fall within specification for any color after V_G or I_{LD} are shifted 30 times, the machine stops V_D or V_L correction and uses the previous V_G and I_{LD} values for all color during copying. When the V_D is not adjustable (SC382) or V_L is not adjustable (SC383), nothing is indicated on the LCD but the SC counter (SC382 or 383) is incremented.

Related SC codes (see troubleshooting section for details):

Code	Condition
380	Incomplete drum potential sensor calibration
381	Abnormal drum potential sensor detection
382	Abnormal V_D detection
383	Abnormal V_L detection
384	Abnormal L_D current
390	Incomplete V_{SG} adjustment

1.4 TONER DENSITY CONTROL

1.4.1 Toner Density Sensor



Developer consists of carrier particles (ferrite) and toner particles (resin and pigment). Inside the development unit, developer passes through a magnetic field created by coils inside the toner density sensor. When the toner concentration changes, the voltage output by the sensor changes accordingly.

1.4.2 Toner Density Sensor Initial Setting

When new developer with the standard toner concentration (5% by weight, 20g of toner in 400g of developer) is installed, developer initial setting must be performed by using SP mode.

During this setting, the output voltage (VCNT) from the auto gain control circuit (AGC) on the main control board varies to change the output voltage from the toner density (TD) sensor. This is done by changing the gain data, (see below).

VCNT = 12 (V) X Gain Data/256

If the data is high, VCNT becomes high, and the sensor output voltage becomes high. As a result, the sensor characteristic becomes as illustrated by curve A. If the data is low, VCNT becomes low, and the sensor output voltage becomes low. As a result, the sensor characteristic shifts as illustrated by Curve C.

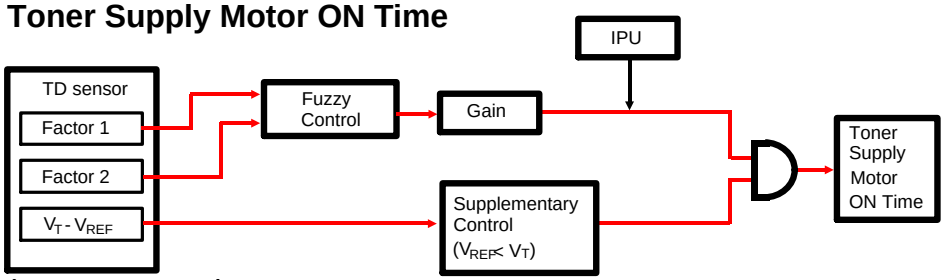
By selecting the proper gain data, the sensor output is set within the targeted control level (VREF : 2.5 ± 0.1V). Now, the sensor characteristic is illustrated by curve B and the TD sensor initial setting is completed.

The selected gain data is stored in memory, and VCNT from the auto gain control circuit stays constant during the toner sensor detection cycle.

1.4.3 Toner Supply Criteria

At every copy cycle, toner density in the developer is detected once. The sensor output voltage (V_T) during the detection cycle is compared with the toner supply level voltage (V_{REF}).

1.4.4 Toner Supply Motor ON Time



1) Fuzzy control

To stabilize toner concentration, the toner supply amount (toner supply motor on time) is controlled by referring to V_{REF} and V_T.
The toner supply amount is calculated at every copy. The toner supply amount is determined by using the following factors.

Factor 1. Average of the previous 20 V_T output values ($\overline{V_T}(20)$)
Factor 2. V_T change tendency during the last 20 detections

By referring to these factors, the machine recognizes the difference between the current toner concentration and the target toner concentration. It then outputs the data to determine the toner supply motor on time. The machine also understands by how much the toner supply amount will probably change. The CPU also refers to the solid area ratio on the copy image informed from the IPU (image area integration data) to improve the precision of the toner density change prediction.
By changing the toner supply amount precisely, toner concentration (image density) is kept at a constant level.
Since the toner supply motor on time update is done under fuzzy control, the relation between factor 1, factor 2, and V_{REF} cannot be expressed by a simple algebraic formula.
The maximum toner supply amount is 60% (this corresponds to the toner quantity for an A3 size original with 60% image area).

2) Supplementary control

Under the following conditions, the toner concentration is low.

- Just after the toner end recovery.
- After continuous high solid area ratio copies.

In these cases, the toner supply amount should be large but if the original solid area ratio is low, the supply amount will be small

because the solid area ratio (image area integration data) affects the toner supply motor on time, as mentioned above.

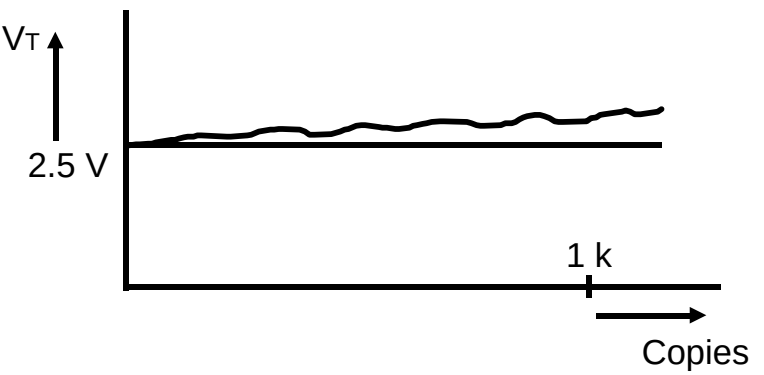
To help the toner concentration return to normal more quickly, supplementary control is used. The supplementary control supplies more toner when the original image area ratio is low. Usually, the effect of supplementary control is much lower than that of fuzzy control. Supplementary control functions only when V_T is larger than V_{REF} and original image ratio is less than 60%. In this condition, both fuzzy control and supplementary control function.

The toner supply amount by supplementary control is:

$1287 \times (V_T - V_{REF}) \times (1 - \text{image ratio data}/748)$

NOTE: 748 corresponds to 60% of image area ratio (A3)

1.4.5 V_{CNT} Correction



Even if the toner concentration is constant, the toner sensor output gradually increases after the new developer is installed because of developer characteristics.
This increases the toner concentration because the machine controls the toner concentration so that V_T stays constant.

To compensate this, the V_{CNT} gain data is decreased by 1 at every 200 copies. The maximum compensation value is shown in the table below.

	Bk	Y	M	C
Maximum Compensation Value	–6	–6	–6	–5

1.4.6 Toner End Detection

1) Toner near end
The toner density sensor detects when toner is about to run out.
Under the following conditions, a **toner near end** condition is detected:

Condition 1) $\overline{V_T}$ (20) > V_{REF} + 0.3 V and $V_T > V_{REF}$ + 0.2 V

Condition 2) $V_T > V_{REF}$ + 0.5 V

Condition 3) $\overline{V_T}$ (20) > V_{REF} +0.3 V and $V_T > V_{REF}$ + 0.5 V

NOTE: VT (20): Average of the last 20 V_T detected data

2) Toner end
Under the following conditions, **a toner end** condition is detected and copying is allowed only for the following 10 copies:

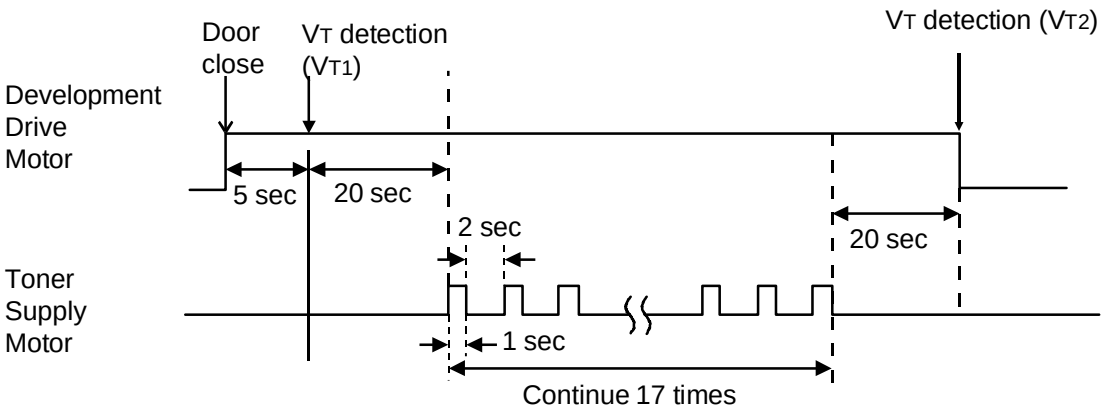
Condition 1 is detected 5 times continuously.
Condition 2 is detected 5 times continuously.
Condition 3 is detected once.

When color toner (Y, M, C) runs out, black copies can still be made and when black toner runs out, single color copies can still be made.

1.4.7 Toner End Recovery

After the toner is added and the front door is closed, the machine detects whether toner concentration has returned to normal.

The toner end recovery sequence is:



Under the following condition, toner end recovery is completed.

$V_{T1} - V_{T2} > 0.10\ V$ or $V_{T2} < V_{REF}$

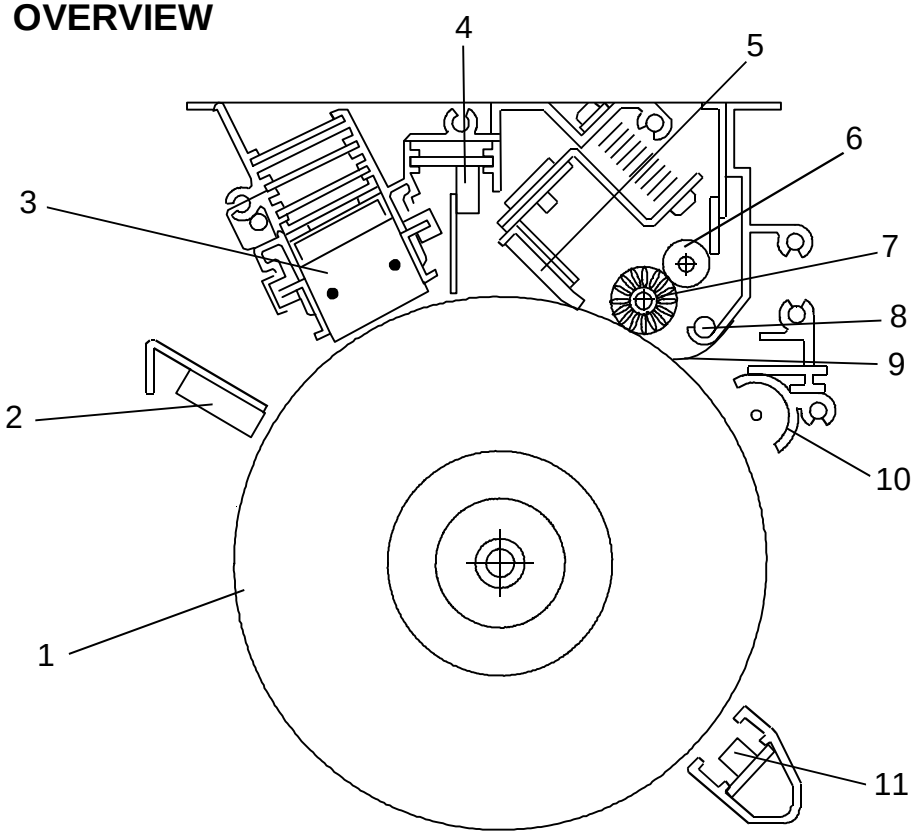
If the above conditions are not satisfied, the toner end condition is not canceled. After the front door is opened and closed, the machine starts the toner end recovery again.

If the toner end recovery sequence is done 3 times and the above condition is not satisfied, the toner end condition is reset and copying is enabled.

After toner end recovery, the first V_T data is used as $V_{T\,(20)}$ for the subsequent 20 copies.

2. DRUM UNIT

2.1 OVERVIEW



The drum unit consists of the components shown in the above illustration.

An organic photoconductor drum (diameter: 120 mm) is used for this model.

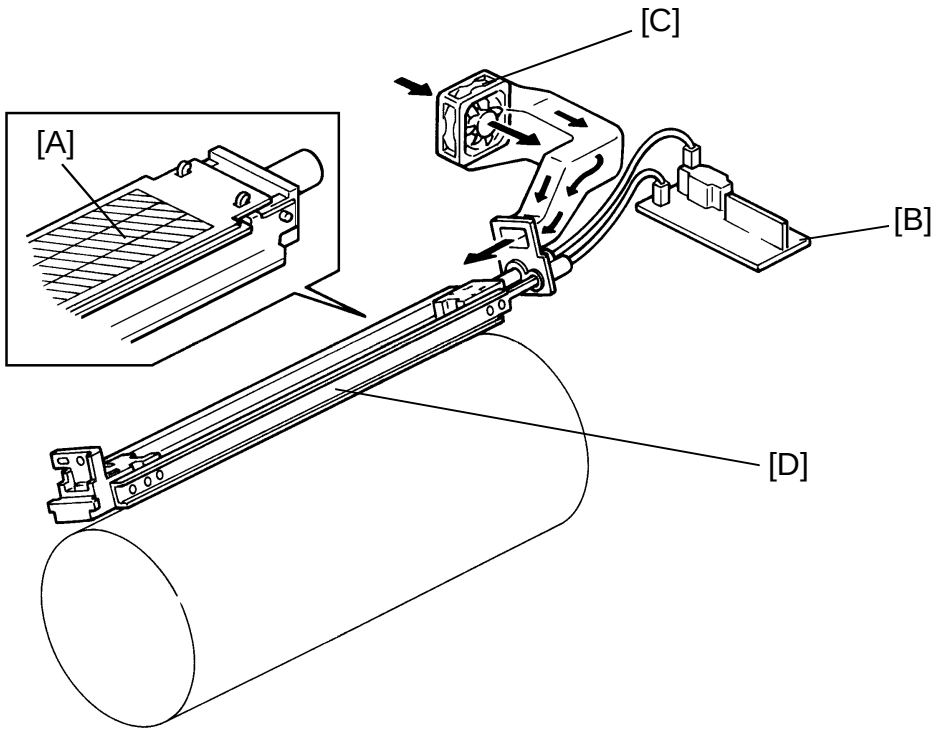
1. OPC Drum
2. Drum Potential Sensor
3. Main Charge Corona Unit
4. Quenching Lamp
5. Drum Cleaning Blade
6. Cleaning Bias Roller
7. Drum Cleaning Brush
8. Toner Collection Coil
9. Cleaning Entrance Seal
10. Pre-Cleaning Corona Unit
11. ID Sensor

2.2 OPC DRUM CHARACTERISTICS

An OPC has the characteristics of:

1. Being able to accept a high negative electrical charge in the dark. (The electrical resistance of a photoconductor is high in the absence of light.)
2. Dissipating the electrical charge when exposed to light. (Exposure to light greatly increases the conductivity of a photoconductor.)
3. Dissipating an amount of charge in direct proportion to the intensity of the light. That is, where stronger light is directed to the photoconductor surface, a smaller voltage remains on the OPC.
4. Being less sensitive to changes in temperature (when compared to selenium F type drums).
5. Being less sensitive to changes in rest time (light fatigue). This makes it unnecessary to compensate development bias voltage for variations in rest time.

2.3 DRUM CHARGE



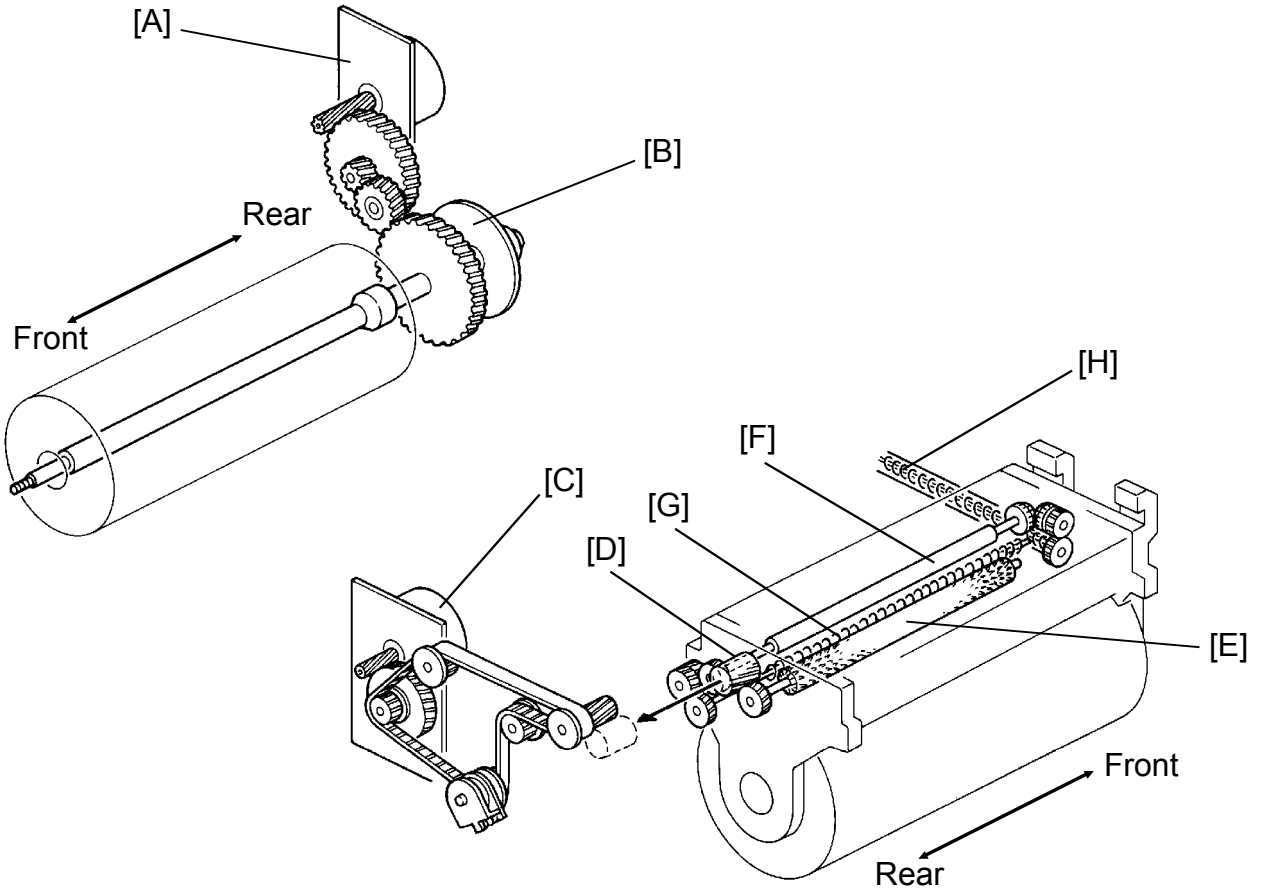
This copier uses a double corona wire scorotron system for the drum charge.

The two corona wires apply a sufficient negative charge to the drum surface. The striped stainless steel grid plate [A] makes the corona charge uniform and controls the amount of negative charge on the drum surface by applying the negative grid bias voltage.

The high voltage supply board-C/G [B] gives a constant corona current (–700 μA)to the corona wires, and controls the grid voltage to maintain proper image density. Grid voltage is controlled to match changing factors such as a dirty grid plate, dirty charge corona casing, and OPC chargeability. (Refer to the Process Control section.)

The charge fan [C] provides a flow of air through the corona unit [D] in order to prevent an uneven build up of negative ions. This helps maintain even image density.

2.4 DRIVE MECHANISM



The drum rotation speed is 180 mm/second. The OPC drum is driven by the drum motor [A]. This motor has a drive controller so that it can control the drum rotation by itself. When the rotation speed becomes out of specification, the drive controller outputs a motor lock signal.

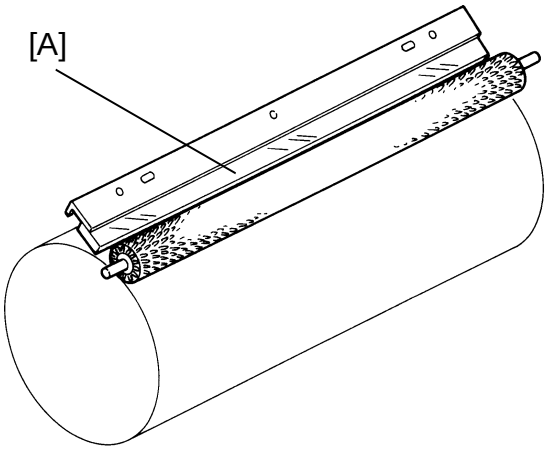
A fly-wheel [B] is installed on the end of the drum shaft to stabilize the rotation speed.

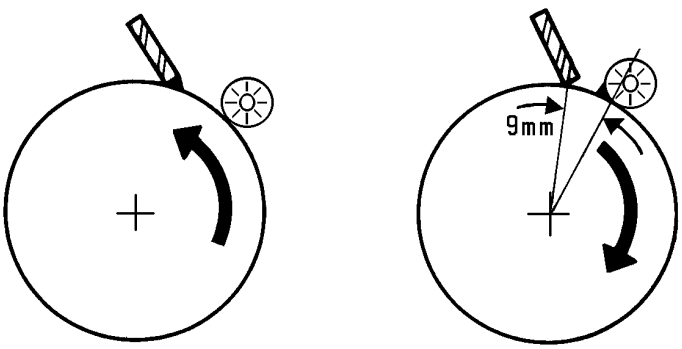
The cleaning mechanism is driven by the cleaning motor [C]. The drive from the cleaning motor is transmitted to the cleaning drive gear [D] via the timing belt.

The cleaning drive gear then rotates the cleaning brush [E], the cleaning bias roller [F], and the toner collection coil [G]. The cleaning bias roller has a bevel gear at the front end to drive the upper toner collection coil [H].

2.5 DRUM CLEANING

2.5.1 Counter Blade System





This copier uses the counter blade system for drum cleaning.

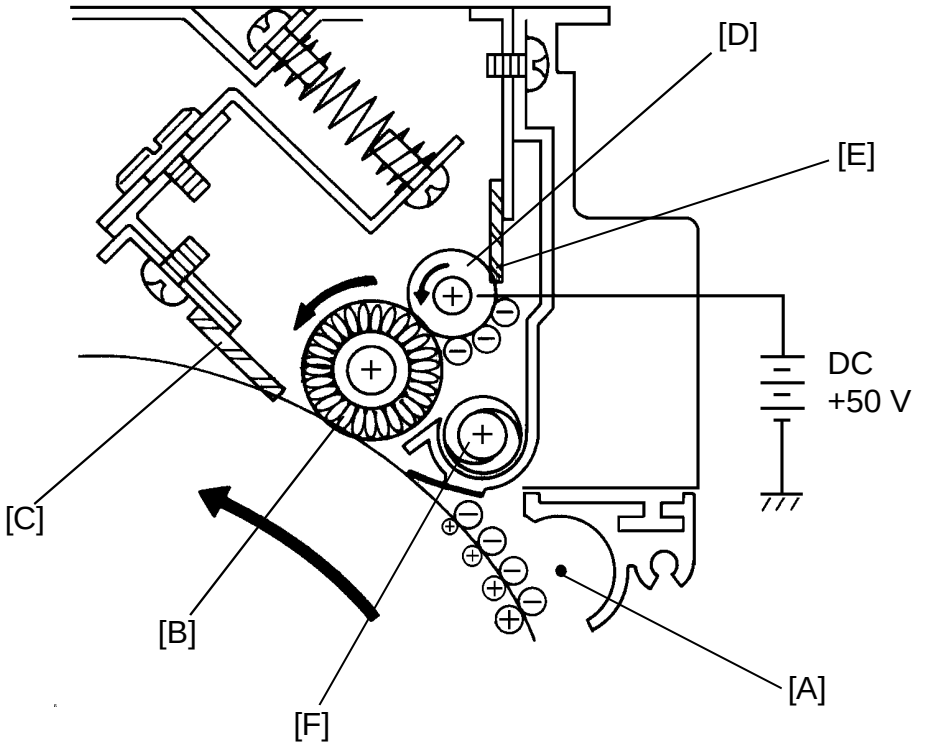
The cleaning blade [A] is angled against drum rotation. This counter blade system has the following advantages:

- Less wearing of the cleaning blade edge
- High cleaning efficiency

The cleaning pressure is continuously applied with a pressure spring.

To remove the accumulated toner at the edge of the cleaning blade, the drum turns in reverse for about 9 mm (0.05 sec.) before starting the normal rotation when the main switch is turned on. The accumulated toner is removed by the cleaning brush.

2.5.2 PCC And Cleaning Bias



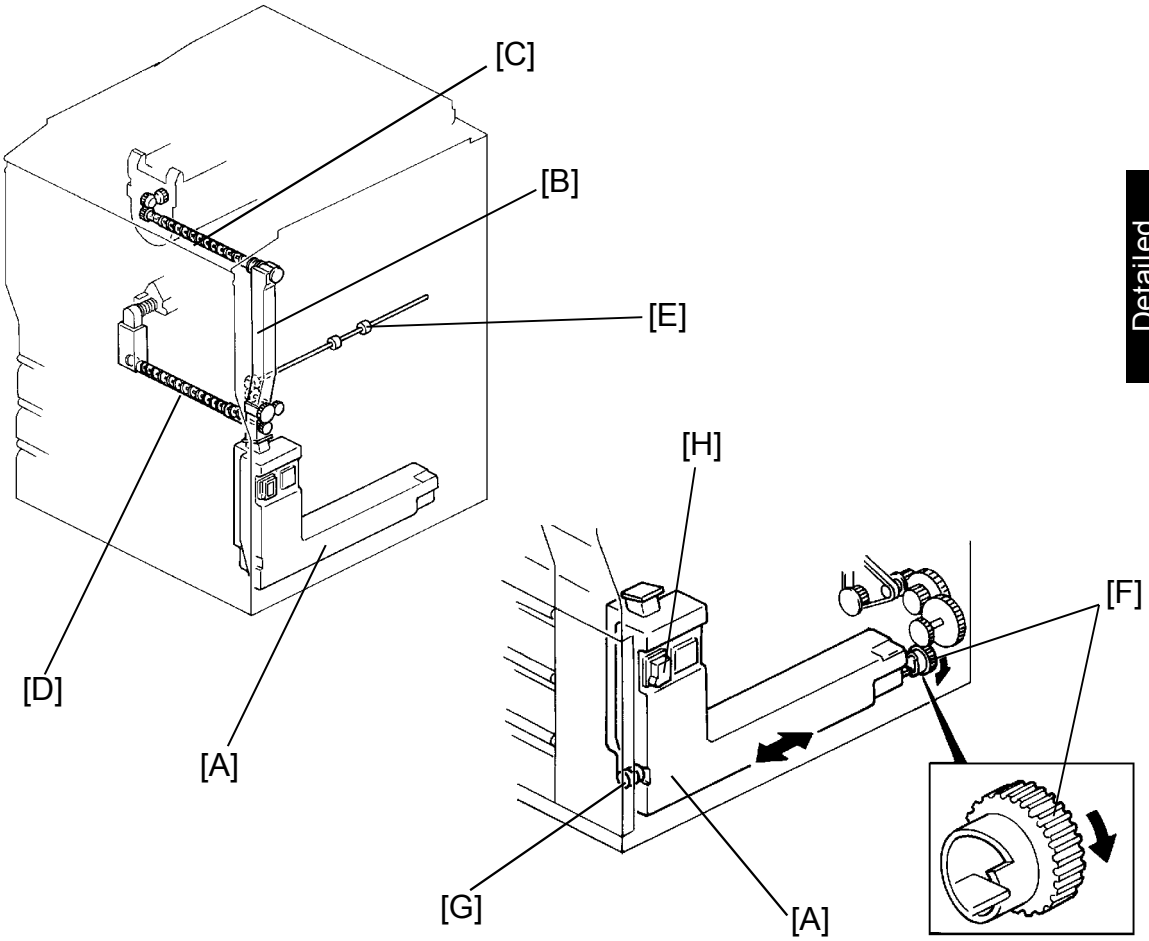
To ensure OPC drum cleaning, the pre-cleaning corona (PCC) [A] applies an AC voltage (100μA) with a negative DC bias (-40μA) to the surface of the drum. This gives the residual toner a uniform negative charge (to be easily attracted by the cleaning bias) and neutralizes the positive charge on the drum (after the image transfer, the drum surface is positively charged).

The cleaning brush (looped brush) [B] is used to support the cleaning blade.

The brush collects toner (mechanically and electrically) from the drum surface and the remaining toner is scraped off by the cleaning blade [C]. Toner on the cleaning brush is electrically attracted to the cleaning bias roller [D] then scraped off by the bias blade [E]. The toner falls on the toner collection coil [F]. Toner is transported to the toner collection bottle by the toner collection coil.

A +50V cleaning bias is applied to the cleaning bias roller and to the cleaning brush which is an electrical conductor (resistance:$10^7\Omega$)

2.5.3 Toner Collection Mechanism



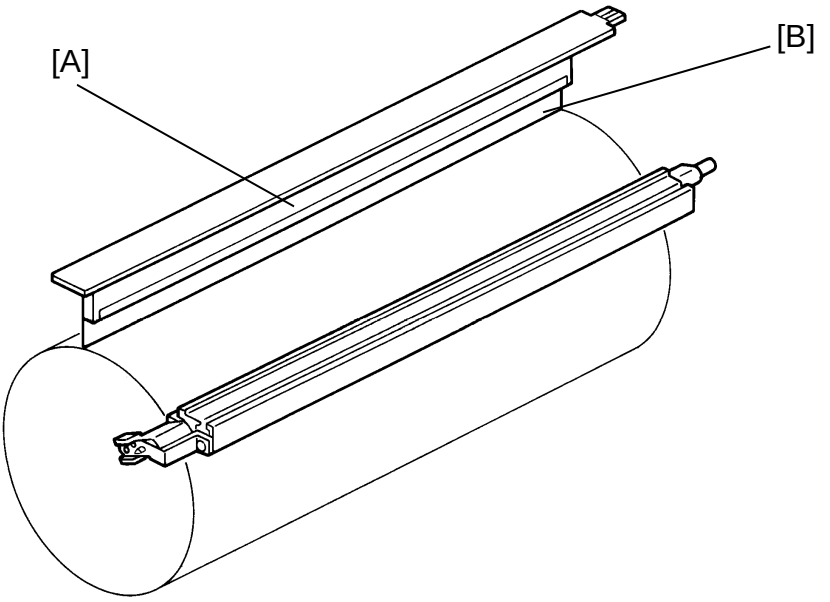
Toner collected by the cleaning section is transported to the toner collection bottle [A] through the toner collection duct [B].

The drive from the OPC cleaning bias roller drives the upper toner collection coil [C]. Toner collected by the transfer belt cleaning section is also transported to the toner collection bottle through the toner collection coil [D]. The drive from the relay roller [E] drives the lower toner collection coil.

The toner collection bottle is pressed against the cam gear [F] by a spring [G]. The drive from the paper feed motor drives the cam gear and shakes the toner collection bottle front to rear to make the level of the collected toner even.

The toner overflow sensor [H] detects the toner full condition. After the toner overflow sensor is activated, 250 copies are allowed, then copying is prohibited and a call service guidance appears on the LCD.

2.6 QUENCHING



In preparation for the next copy cycle, light from the quenching lamp (QL) [A] neutralizes any charge remaining on the drum.

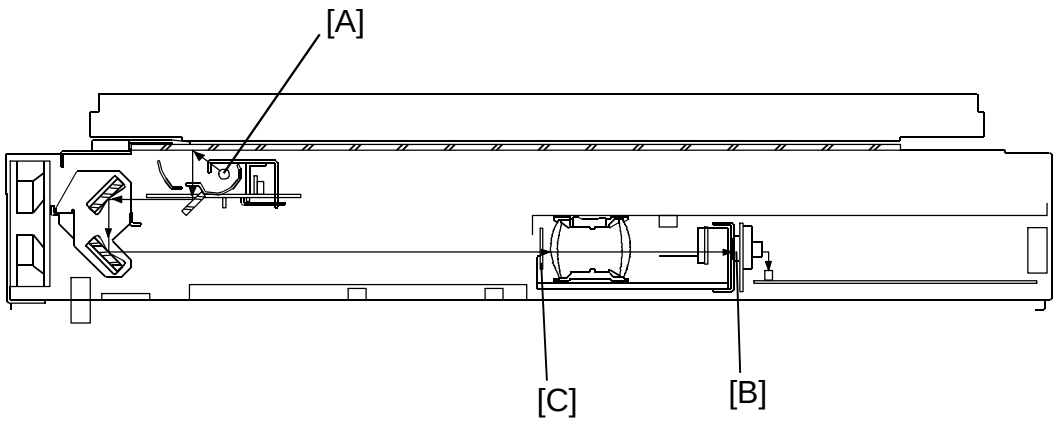
The erase lamp turns on at the same time as the drum motor activates.

Red colored LEDs are used for the quenching lamp to reduce ultra violet light that would cause light fatigue on the OPC drum.

The mylar [B] on the side of the quenching lamp stops the air flow from the cleaning section to the main charge corona to prevent the charge corona unit from becoming dirty with toner.

3. SCANNING

3.1 OVERVIEW



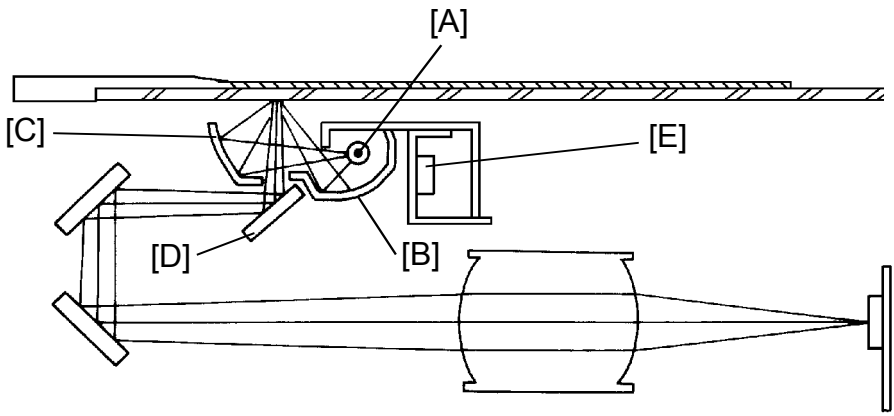
An image of the original exposed by the exposure lamp (halogen lamp) [A] is reflected on a color CCD (charge coupled device) [B] via the 1st, 2nd, 3rd mirrors, filter [C], and lens.

The number of scan depends on the copy mode, black, full color, auto color select, or single color. The scanner moves 4 times at most, once for each development cycle. The order of the cycles is black, cyan, magenta, and yellow.

One chip color CCD with R/G/B color filter is used for photo-electric conversion.

The scanning capability is 400 dpi (5,000 pixels).

3.2 SCANNER UNIT



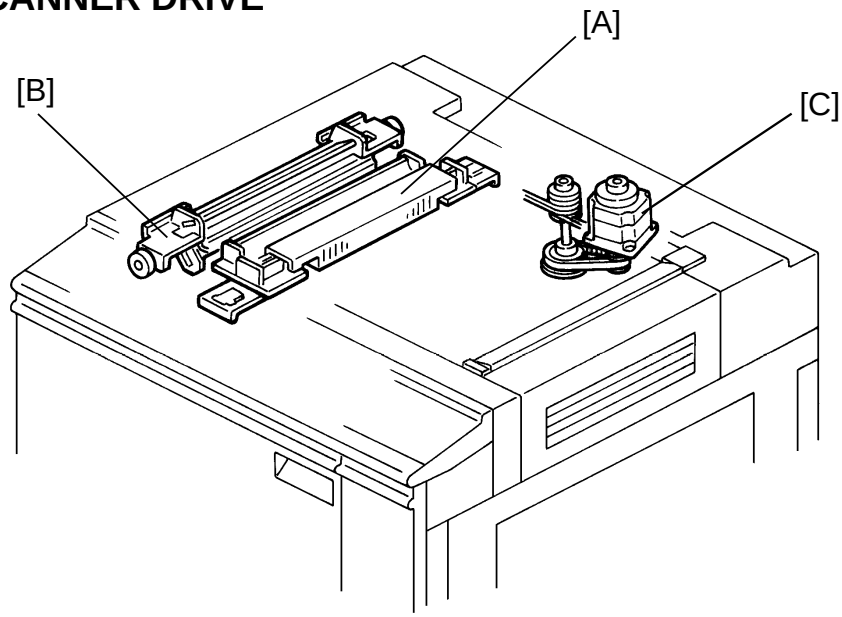
The 1st scanner consists of the exposure lamp [A], main and sub reflectors [B, C], and 1st mirror [D].

This model uses a halogen lamp for the exposure lamp unlike other digital copiers which use fluorescent lamps. This is because the color CCD requires a greater light intensity than a black/white CCD due to its color filters. The exposure lamp is energized by a dc current to avoid uneven light intensity in the sub scan direction. The entire exposure lamp surface is frosted to ensure even exposure in the main scan direction.

The light intensity reflected by the main and sub reflectors are almost even to reduce shadows of pasted originals.

The thermoswitch [E] is installed on the 1st scanner to protect against overheating. It will turns off at around 140°C.

3.3 SCANNER DRIVE



A five phase stepper motor is used for a scanner drive. The 1st and 2nd scanners [A, B] are driven by this scanner drive motor [C] via 4 scanner wires. The length of each wire is different.

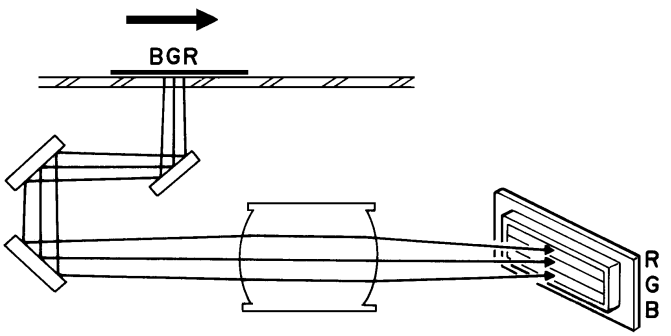
In full size mode, the 1st scanner speed is 180 mm/sec. during scanning, and 1,040 mm/sec. when the scanner returns. The 2nd scanner speed is half that of the 1st scanner.

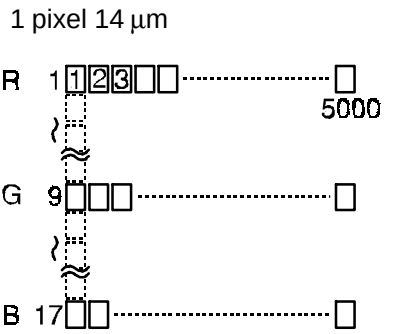
In reduction or enlargement mode, the scanning speed is changed according to the magnification ratio (M: 0.25 to 4.00) e.g. 180/M mm/sec. The returning speed is always the same. The image length change in the sub scan direction is done by the scanner speed change and that in the main scan direction is done by the image processing through the IPU board.

The number of scan changes according to the color selection mode as shown in the following table:

Mode	Number of scans	Development order	Note
Black	1	Bk	—
Auto Color Select	1	Bk	For black/white originals
	4	Bk–C–M–Y	For colored originals
Single Color	1	C, M, or Y	For toner colors
	2	C–M, C–Y, or M–Y	For complementary colors
	4	Bk–C–M–Y	For user color
Full Color	4	Bk–C–M–Y	4C mode
	4	C–M–Y	3C mode

3.4 COLOR CCD



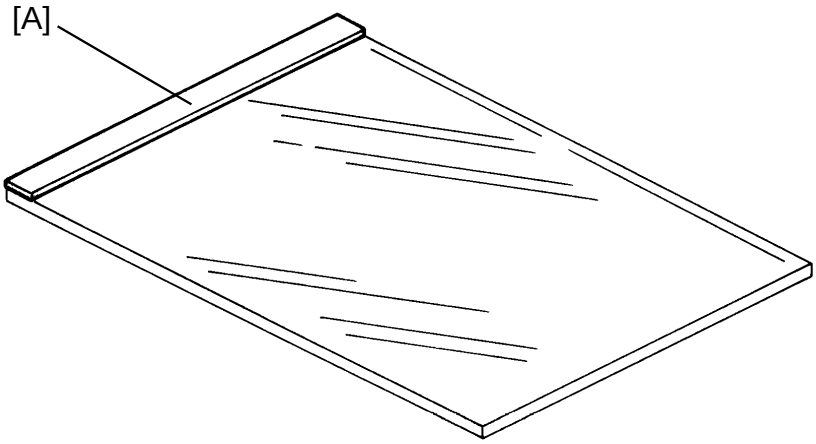


The color CCD converts light reflected from the original into three analog signals, one for each of the three basic colors Red, Green, and Blue. The signals are called the R, G, and B signals. Each of the four scans (for toner colors YMCBk) uses all three signals (RGB).

The CCD consists of three lines of 5000 elements, giving the CCD a resolution of 400 dpi (15.7 dots/mm). Each line of elements has a color separation filter for each of the three basic colors.

The lines are spaced 8 pixels apart for full size magnification. To correct this spacing, the R, G, and B signals must be synchronized. This is done by delay memories in the scanner control board before the three signals are sent to the IPU board (refer to the Image Processing section.)

3.5 WHITE PLATE SCANNING



For auto shading, a white plate [A] is stuck on the exposure glass, underneath the left scale.

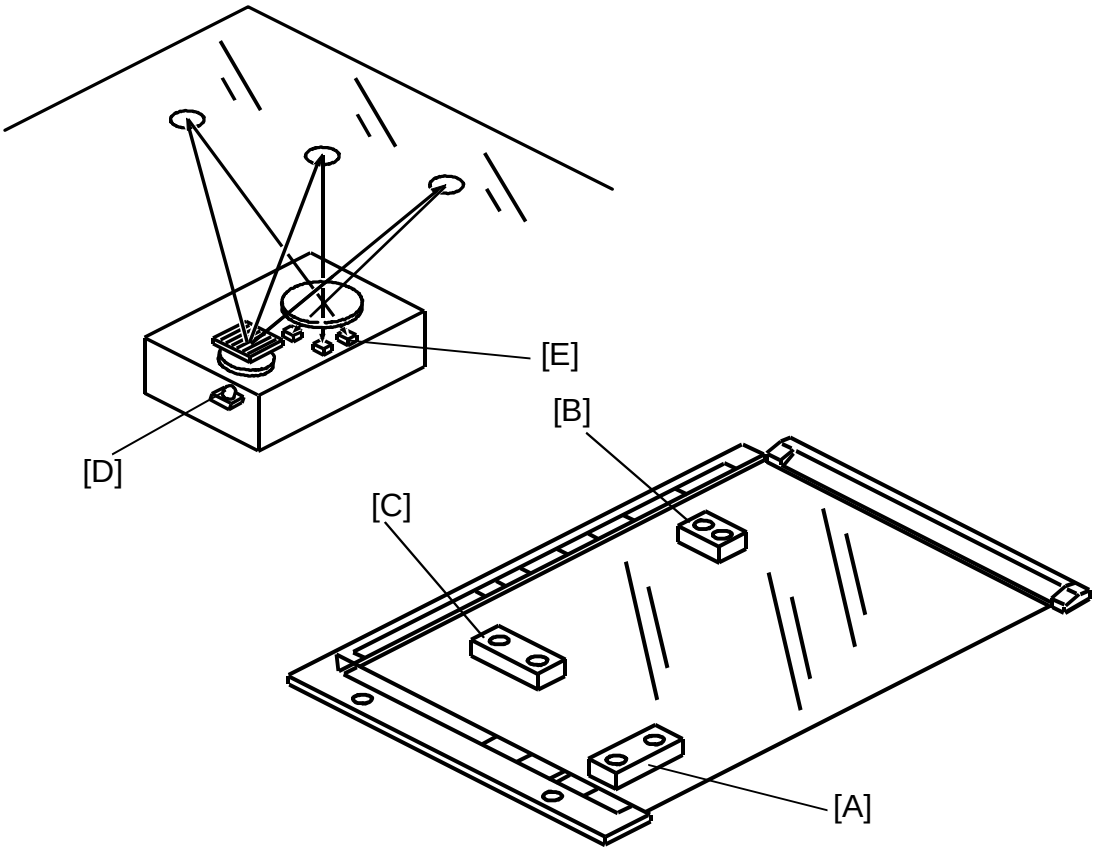
When this white plate is exposed, the output from all the CCD elements in a line should in theory be equal, but actually they are not, because of the following:

- Variations in sensitivity between elements of the CCD
- Variations in characteristics of the lens and mirror reflectivity
- Loss of brightness toward the ends of the exposure lamp

To correct this uneven output from the CCD elements, auto shading is performed based on the light reflected from the white reference plate.

Auto shading is done for every copy cycle at the scanner home position before starting the first scan. However, it is done only once at the first copy cycle during a multicopy run in single color (1C) mode because the interval between copy cycles is too short.

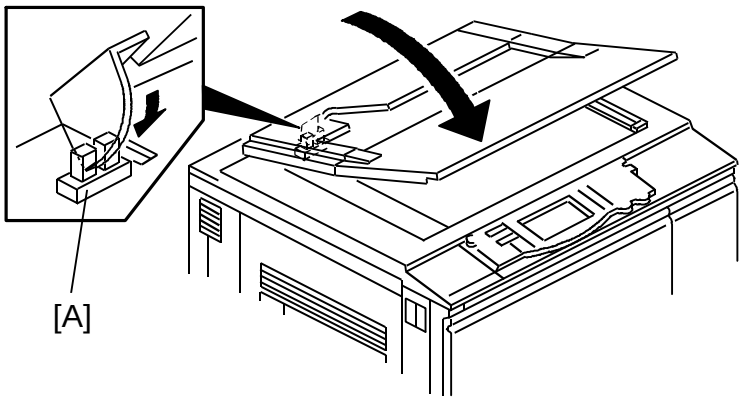
3.6 ORIGINAL SIZE DETECTION



There are three reflective sensors (APS sensors) in the optics cavity for the original size detection. Original width Sensor [A] is used for sensing the original width while Original Length Sensor-1 [B] and Original Length Sensor-2 [C] sense the original length.

Inside each APS sensor, there is an LED [D] and three photoelectric devices [E]. The light generated by the LED is broken up in three beams and each beam scans a different point of the exposure glass. If the original or platen cover is present over the scanning point, the beam is reflected and each reflected beam exposes a photoelectric device and activates it.

While the main switch is on, these sensors are active and the original size data is always sent to the main CPU. However, the main CPU checks the data only when the platen cover is opened.



Original Size		Length Sensor 1			Length Sensor 2	Width Sensor		
A4/A3 version	LT/DLT version	1	2	3	4	5	6	7
A3	11 x 17 (11 x 15)	1	1	1	1	1	1	1
B4	10 x 14	0	1	1	1	1	1	1
—	8 1/2 x 14	0	1	1	1	1	1	0
F4	8 1/2 x 13 (8 x 13)	0	0	1	1	1	1	0
A4–L	8 1/2 x 11 (8 x 10)	0	0	0	1	1	1	0
B5–L	—	0	0	0	1	1	0	0
A5–L	5 1/2 x 8 1/2	0	0	0	1	0	0	0
A4–S	11 x 8 1/2	0	0	0	1	1	1	1
B5–S	—	0	0	0	0	1	1	1
A5–S	8 1/2 x 5 1/2	0	0	0	0	1	1	0

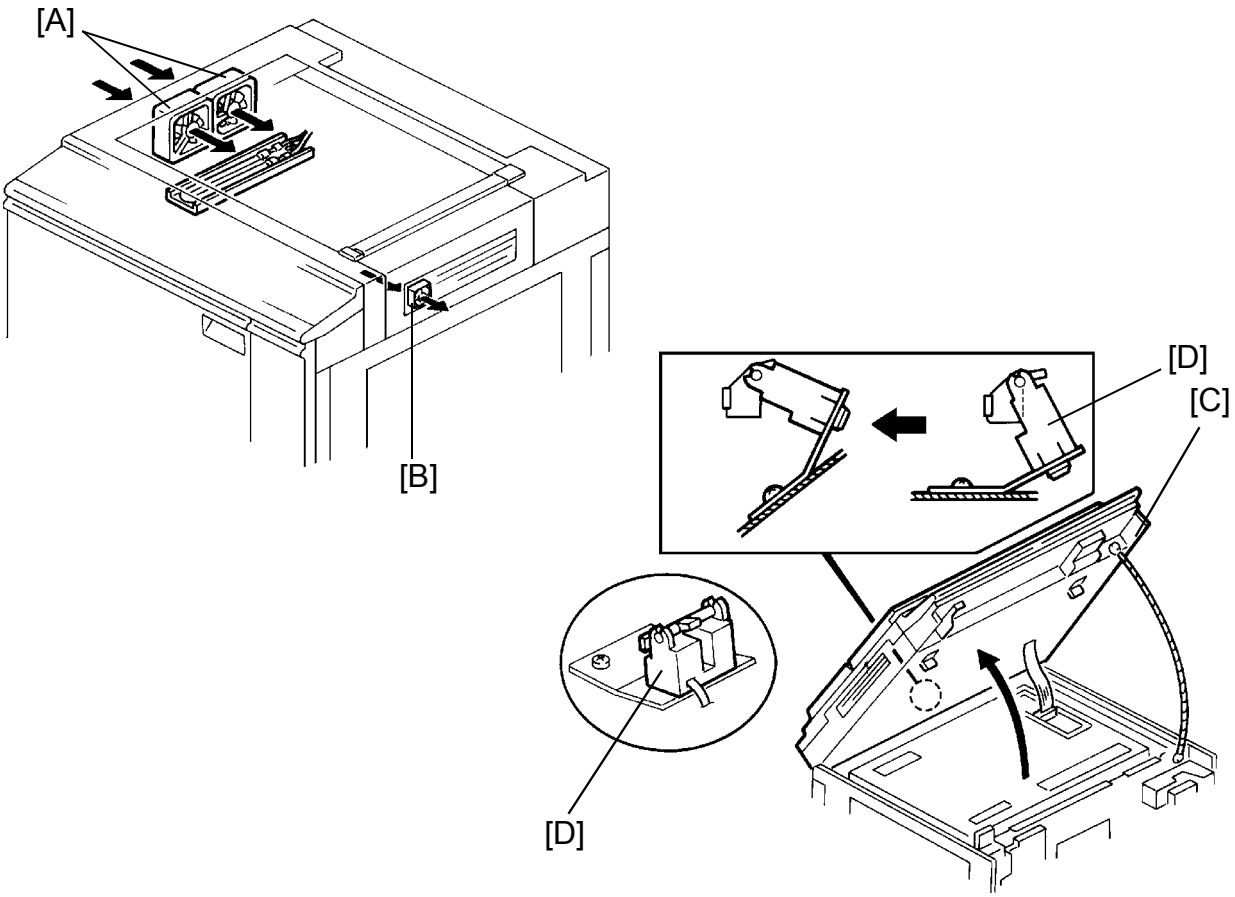
NOTE: –L: Lengthwise
–S: Sideways

The check is done when the platen position sensor [A] turns on. This is when the platen is positioned about 15 cm above the exposure glass. At this time, only the sensors located underneath the original receive the reflected light and are on. Other sensors are off. Through the on/off data of the seven sensors, the main CPU can recognize the original size.

In case the copy is made with the platen open, the main CPU decides the original size only through the data when the Start key is pressed.

This original size detection method eliminates the necessity for a pre-scan and increases the machine's productivity.

3.7 OTHERS



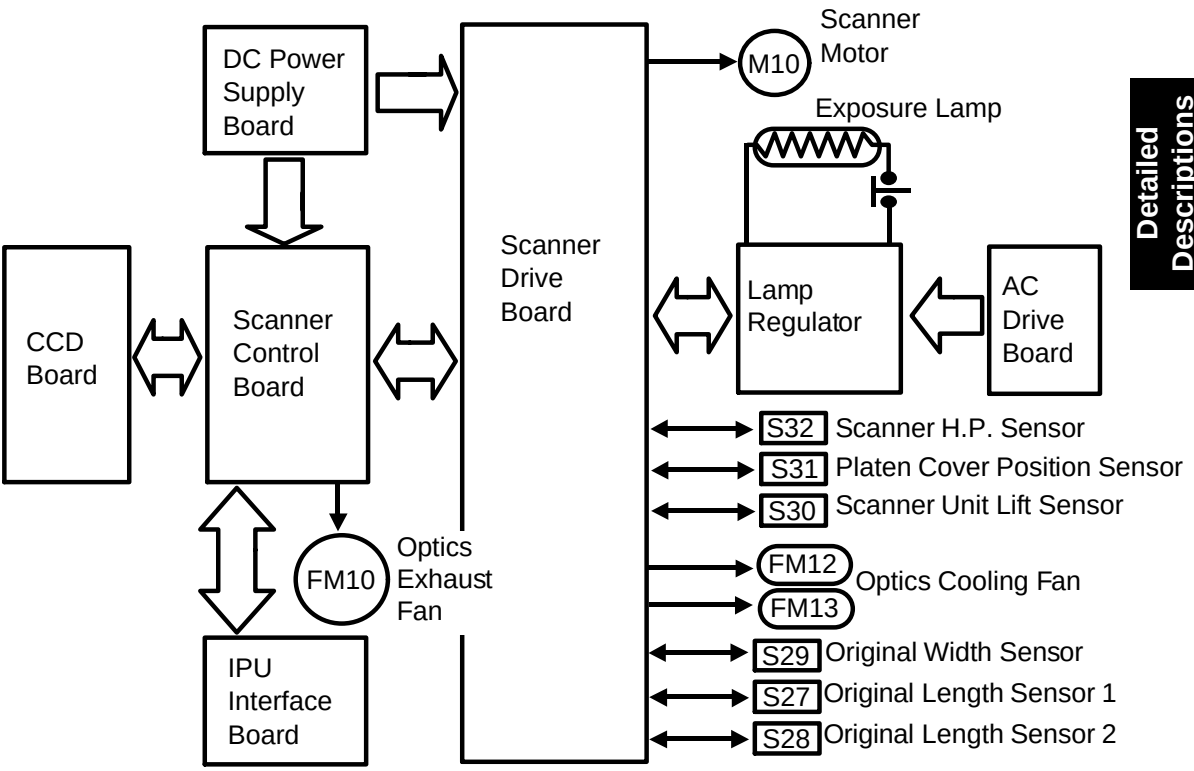
A pair of optics cooling fan [A] is located at the left side of the optics cavity. These fans blow air into the optics cavity to prevent the exposure lamp and optics cavity from overheating during copy cycles.

The optics exhaust fan [B] is located at the right side of the optics cavity under the lens housing cover. This fan blows air out to keep the CCD board and the scanner control board from overheating.
It rotates at low speed (dc 15 V) in standby condition and at high speed (dc 24 V) during copy cycles.

An anticondensation heater is installed on the left side of the optical base plate. It turns on when the main switch is off.

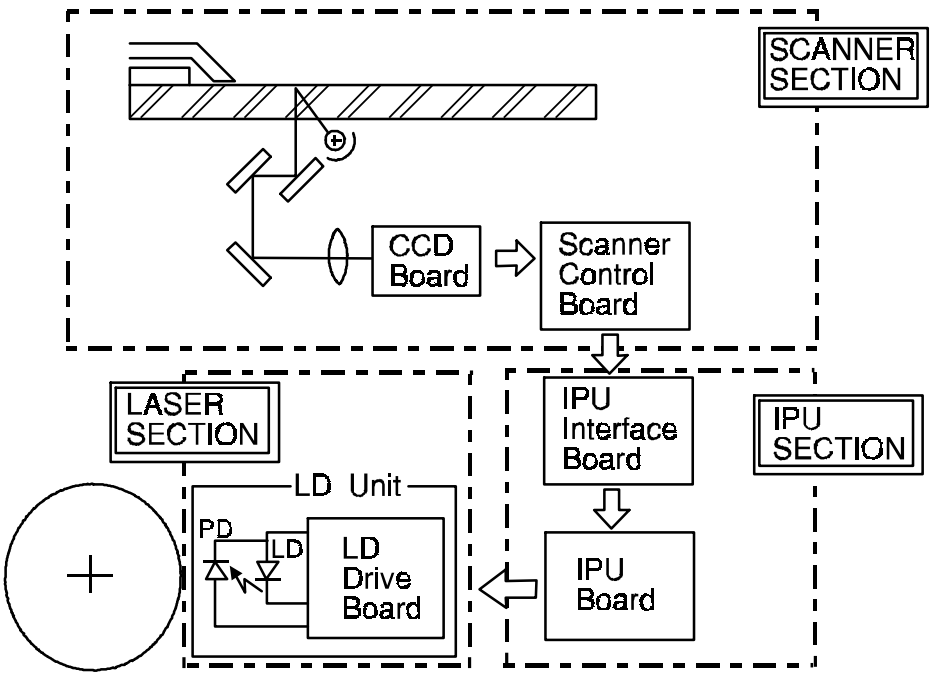
For field servicing, the scanner unit [C] can be opened. When the scanner unit is lifted, the actuator of the scanner unit lift sensor [D] moves the sensor out. Then, for safety, the CPU prohibits the scanner motor from rotating. The start key stays red under this condition.

3.8 SCANNER SECTION BLOCK DIAGRAM



4. IMAGE PROCESSING

4.1 OVERVIEW



The CCD board has three CCD lines with red, green, and blue filters; it generates an analog video signal for each color when the original is scanned. Three signals are sent to the scanner control board.

The processing by the scanner control board includes:

> Signal amplification, A/D conversion and signal composition, auto shading, D/A conversion, scan line correction

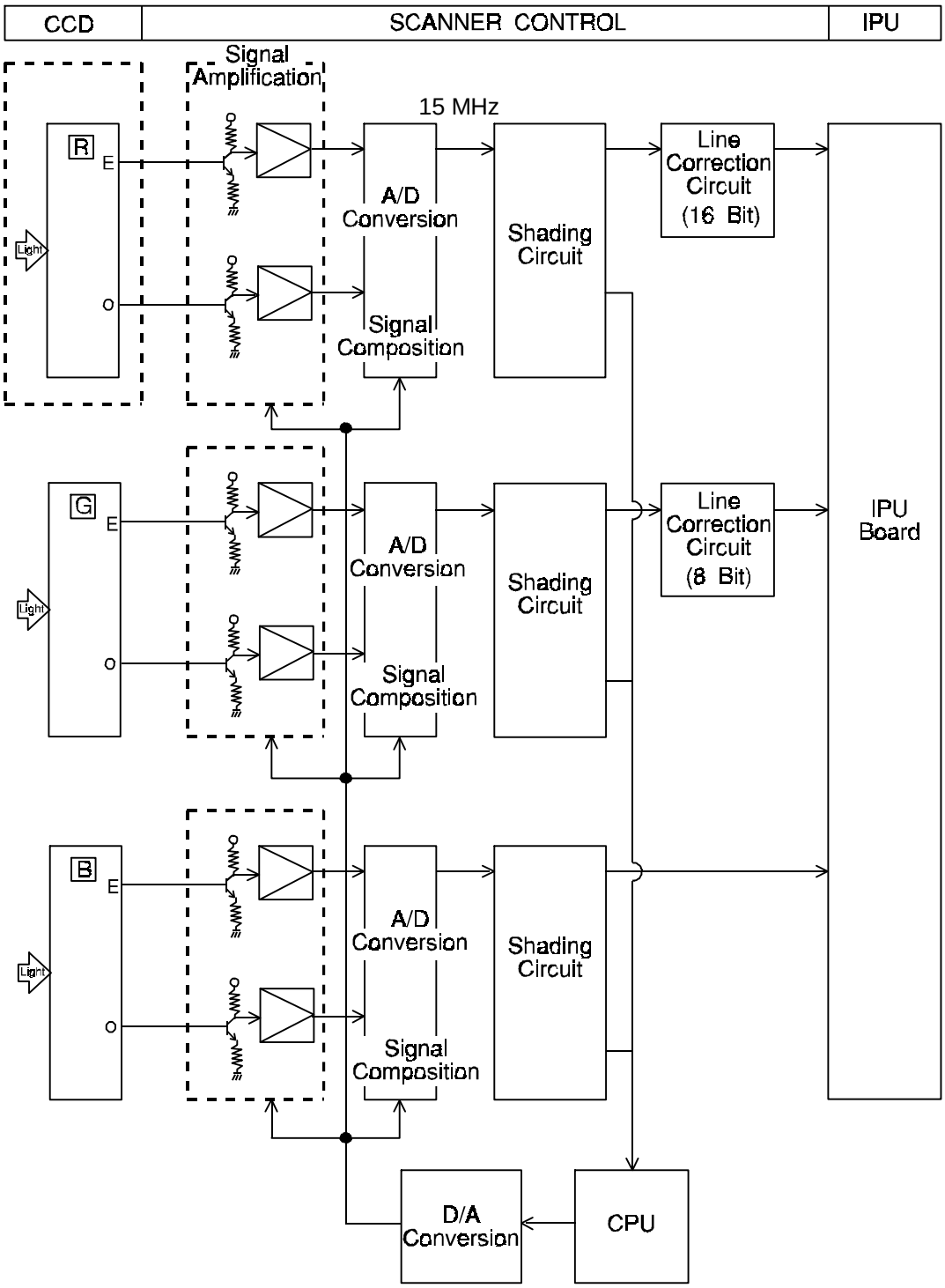
The processed R/G/B digital video signals (8 bits for each color) are sent to the IPU (Image Processing Unit) board through the IPU interface board. These signals can be considered as the raw data from the original image detected by the scanner section.

Then the IPU board applies correction for the next step. According to the operation mode, the following image processing is applied:

> Auto color selection, auto letter/photo separation, filtering and color conversion, magnification adjustment, image creation, printer gamma correction, dither processing

Finally, the video controller on the IPU board sends 8-bit video data to the LD drive board at the proper time for each scanning cycle (Bk, C, M, Y).

4.2 SCANNER SECTION BLOCK DIAGRAM



4.3 CCD BOARD

The color CCD converts the light reflected from the original into R/G/B analog signals (15 MHz). Each CCD line has 5,000 pixels and the resolution is 400 dots per inch (15.7 lines/mm).

Each color CCD has two output lines, odd and even, to the scanner control board. Since the processing speed for one pixel is very fast, odd and even pixels are read from the CCD separately so that the signals can be amplified in the scanner control board properly. Therefore, the processing speed of each CCD output line is 7.5 MHz.

4.4 SCANNER CONTROL BOARD

4.4.1 Signal Amplification

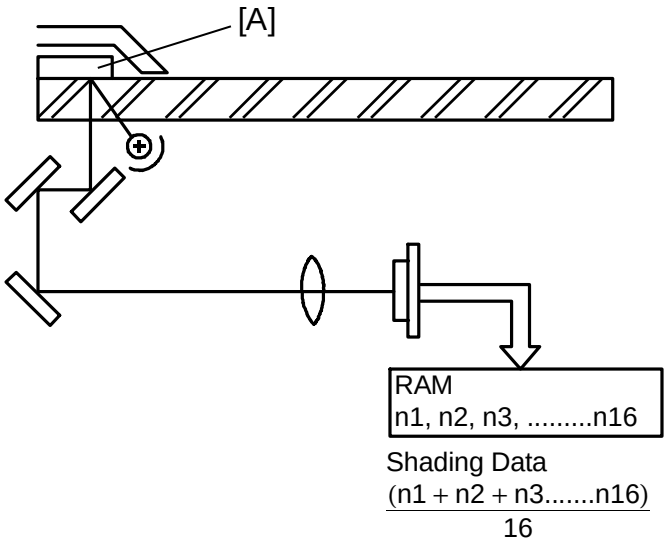
Odd and even R/G/B analog signals from the CCD board are amplified independently by operational amplifiers. The gain ranges of the operational amplifier are controlled by the scanner CPU by judging the feedback signals from the shading circuits.

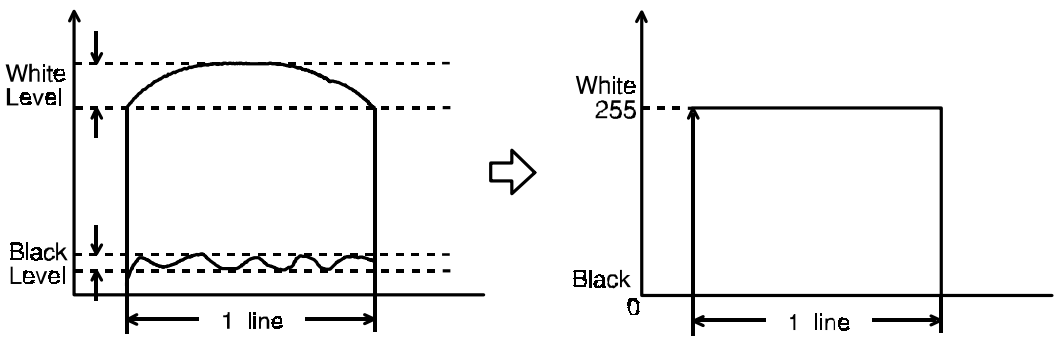
4.4.2 A/D Conversion and Signal Composition

A/D conversion:
The amplified analog signals are converted to 8-bit digital signals (7.5 MHz) for each color (R/G/B). This will give 256 gradations for each pixel.

Signal composition:
Then the digitized odd and even signals for each color are merged by a switching device, producing an 8-bit digital signal at 15 MHz.

4.4.3 Auto Shading





Before scanning the original, the machine reads a reference wave form from the white reference plate [A] (below the left scale) 16 times. The average of the white video level for each pixel is stored as the white shading data in the memory of the shading circuit.

To improve image reproduction for high density areas, the machine also reads the black video level 16 times with the exposure lamp turned off. This is done before white shading. The average of the black video level for each pixel is stored as the black shading data in the memory of the shading circuits.

The video signal information for each pixel obtained during image scanning is corrected by the shading circuit as follows:

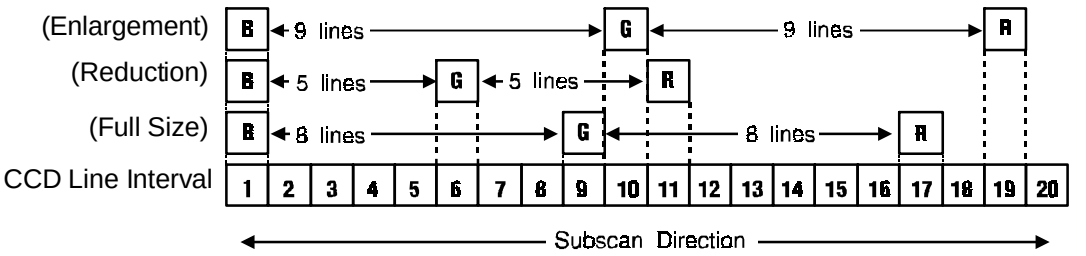
$$\text{Output} = \frac{(\text{Video data}) - (\text{Black shading data})}{(\text{White shading data}) - (\text{Black shading data})} \times 255$$

4.4.4 D/A Conversion

The scanner CPU monitors the feed back signals from the shading circuits and calculates correction factors. The digital data in the CPU is converted to analog data to feed them back to the signal amplification and A/D conversion sections.

- Black level data is fed back to the signal amplification section.
- White level data (Vref) is fed back to the A/D conversion section.

4.4.5 Scan Line Correction



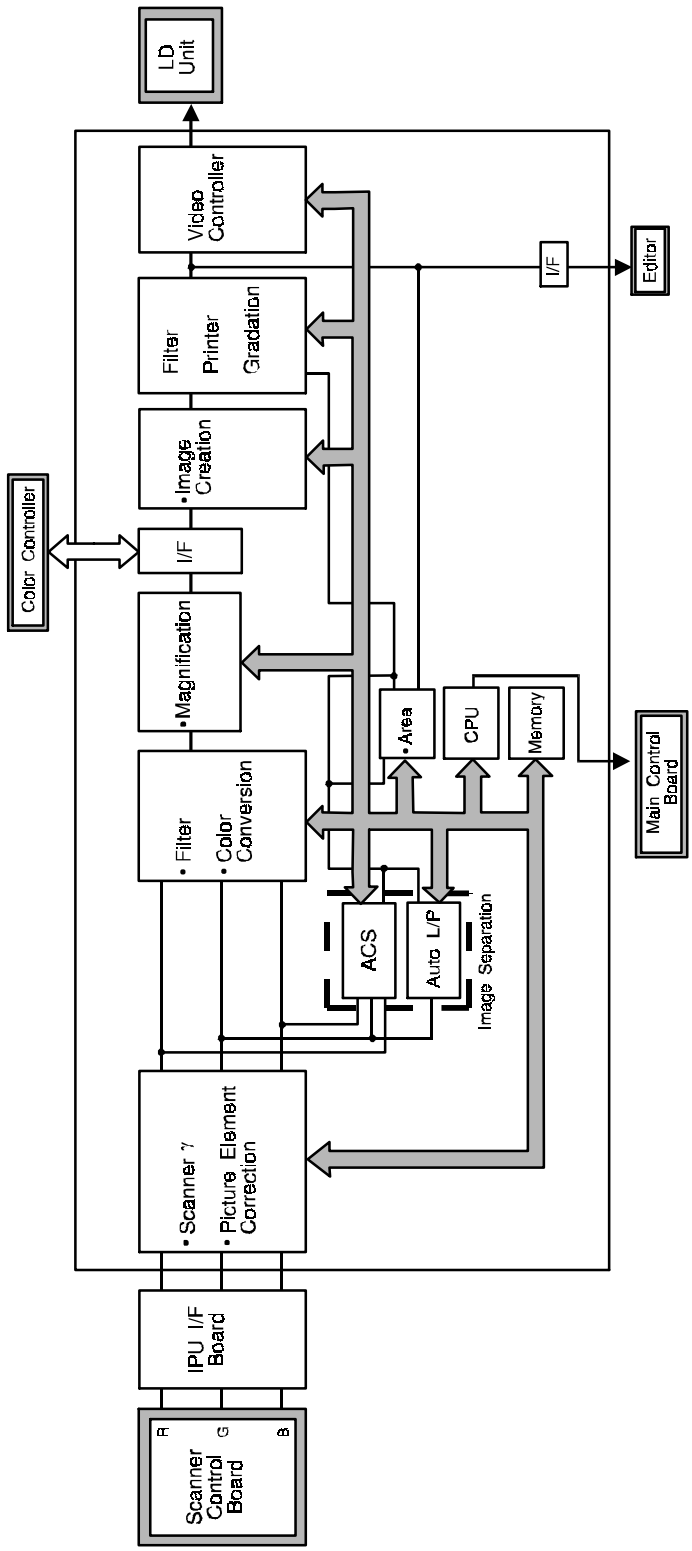
The three CCD lines providing the R/G/B signals (red, green and blue) are spaced 1/50 inch apart. To compensate for this discrepancy, the line correction circuits synchronize the output timing of the R/G/B signals to the IPU board by storing the scan data for each line in memory.

As the discrepancy between R/G/B video signals changes depending on the magnification ratio, the correction data is calculated as follows:

B: Standard (No correction)
G: (8 lines) x (Magnification ratio)
R: (16 lines) x (Magnification ratio)

If this calculation does not result in an integer, the correction data is set to the closest integer, but further correction is needed (see section 4.7.2 for details).

4.5 IPU SECTION BLOCK DIAGRAM



4.6 IPU INTERFACE BOARD

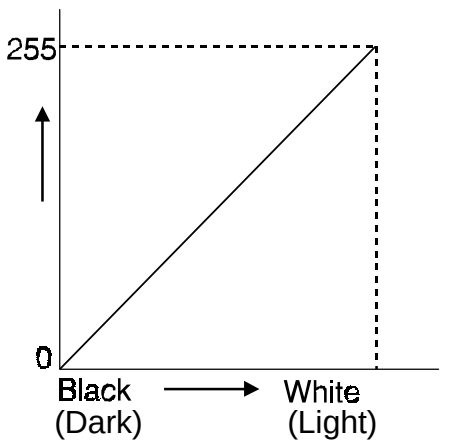
The IPU interface board changes the clock frequency of the R/G/B video signals from 15 MHz to 14.318 MHz to protect the signals from noise.

It also sends the synchronizing signal for the polygon motor and other components to the scanner control board.

4.7 IPU BOARD

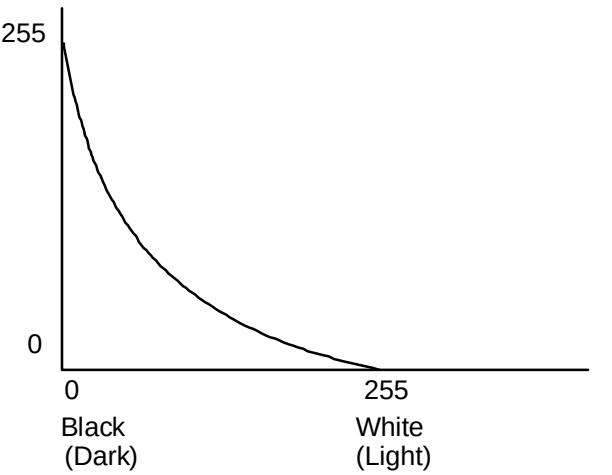
4.7.1 Scanner Gamma Correction

<R/G/B Video Signal>



<Reflected light from originals>
Fig. 1

<R/G/B signal after scanner γ correction>



<R/G/B signal from scanner control board>
Fig. 2

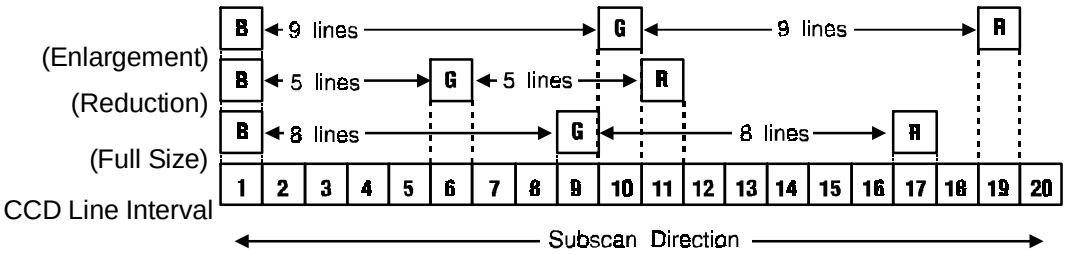
The R/G/B video signals detected by the CCD are converted to 8-bit digital signals in the scanner control board and sent to the IPU board. These signals are proportional to the light intensity reflected from the original image (Fig. 1).

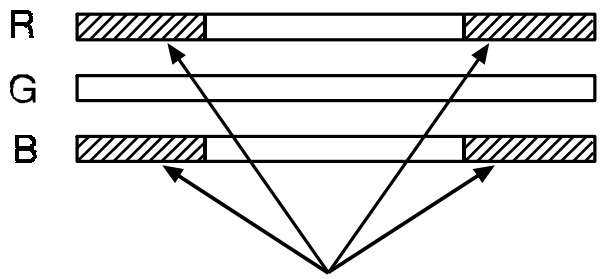
However, the IPU board converts the signal levels as shown in figure 2 by using a gamma correction table in order to improve the color conversion accuracy. The same table is used for R, G, and B signals.

The scanner γ correction converts the video signal levels as follows:

	[Black]	[White]
Scanner Input (R/G/B)	0	255
After γ correction (R/G/B)	255	0
→[Color Conversion]→		
Printer Output (Y/M/C)	255	0

4.7.2 Picture Element Correction





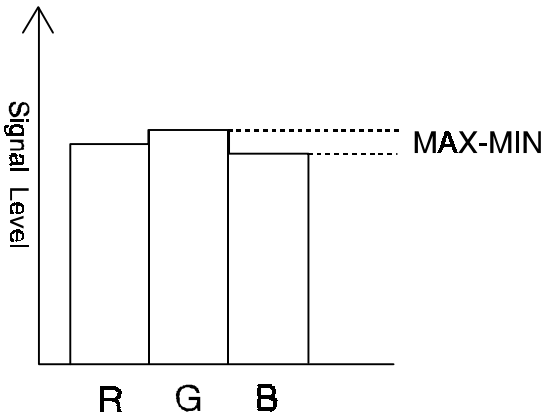
Picture Element Correction

The discrepancy of the R/G/B signals from the CCD in the subscan direction is corrected by the line correction circuit of the scanner control board (see section 4.4.5 for details). However, if the correction data corresponding to the magnification ratio is not an integer, then further correction is needed to synchronize the R/G/B signals.

If the CCD board is not positioned perpendicularly to the light axis, the position of each pixel is different from the original image position. This difference becomes larger towards the ends. Under this condition, vertical black lines (in the subscan direction) at the ends are colored because Y, M, C toner dots are not properly positioned. (Example: vertical lines at the right and left edge of the C4 color chart)

Therefore, the CCD line spacing is also corrected here. The target areas for this correction are shown above. The vertical line correction level can be changed by the SP mode (page 1-20, No.130).

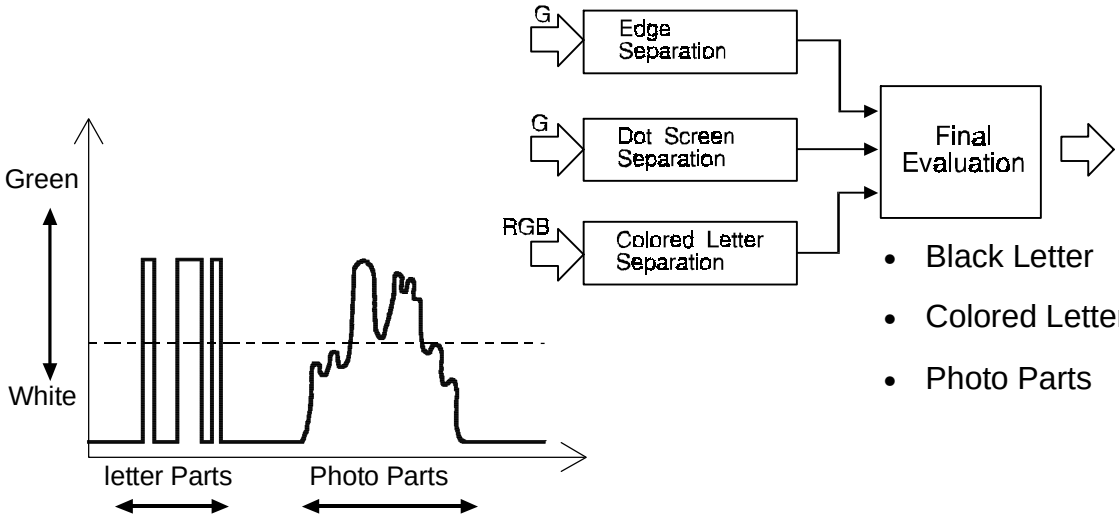
4.7.3 Auto Color Selection (ACS)



In auto color selection mode, the black copy mode or full color mode is automatically selected according to the original image. During the 1st scanning cycle, the original image is developed with black toner according to the corrected R/G/B video signals. If the original does not have any colored image, the 2nd scanning is aborted and the developed image is transferred from the transfer belt to copy paper. Then the black and white copy comes out. If the original has a colored image, copying operation resumes in the full color copy mode (4 scans).

To recognize if the original has a colored image or not, R/G/B video signals are compared. If the maximum difference among R/G/B signal levels is within a certain range, it is considered a black and white original.

4.7.4 Auto Letter/Photo Separation



In auto letter/photo mode, the original image is separated into letter and photo parts (dot screen areas).

Generally letter parts have strong contrast between the image and the background. Photo parts (dot screen areas) have a middle range of signal levels of contrast. By using these characteristics and the following separation methods, the original image is separated into black letter parts, colored letter parts, and photo parts for the final evaluation.

(1) Edge separation
The edge of letters are separated by using the following characteristics: Strong contrast, continuity of black or color pixels, continuity of white pixels around the black or color pixels

(2) Dot screen separation
Dot screen areas are separated from non-dot screen areas (mainly letters) by using the following characteristics:
White pixels are not detected around the pixels in dot screen areas.

(3) Colored letter separation
Black pixels and color pixels in letter parts are separated by judging the difference among R/G/B maximum signal levels and the output levels of R/G/B video signals.

The letter parts are processed in letter mode and the photo parts are processed in photo mode in the subsequent image processing steps.

However, auto letter/photo separation is mostly effective only for small letters. If there are big letters or solid patterns in the original, only the edges of those images is processed in the letter mode. The inside of those images is processed in photo mode.

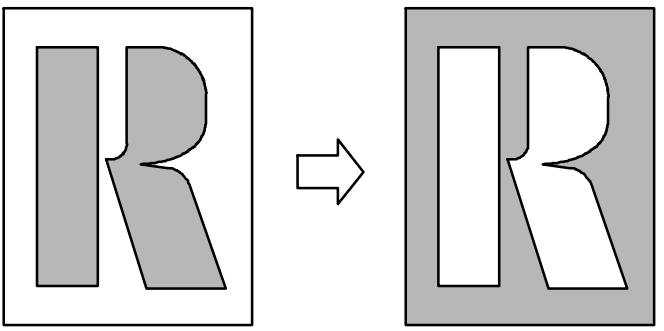
4.7.5 Filter and Color Conversion

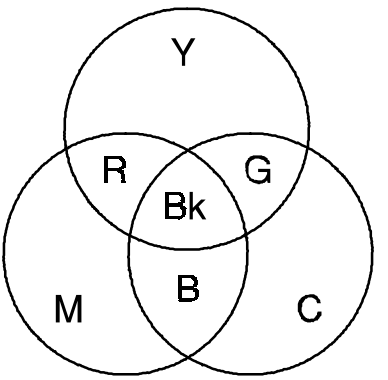
(1) Filter

According to the results of auto letter/photo separation, the appropriate software filters (fixed) are applied to R/G/B video signals.

- High contrast (emphasizing edges) filter for letter parts
- Smoothing filter for photo parts

(2) Positive/Negative Reverse



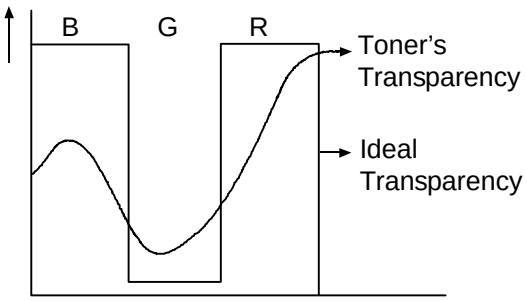


In the positive/negative image mode, colors are changed to their complement, as shown below:

Red	–	Cyan
Green	–	Magenta
Blue	–	Yellow
Yellow	–	Blue
Magenta	–	Green
Cyan	–	Red
Black	–	White
White	–	Black

(3) Color Conversion

<Transparency of M Toner>



<Color Conversion Table>

Original Color / Toner	Bk	R	Y	G	C	B	M	W
Y	1	1	1	1	0	0	0	0
M	1	1	0	0	0	1	1	0
C	1	0	0	1	1	1	0	0
Bk	1	0	0	0	0	0	0	0

R/G/B video signals from each scanning cycle are processed by color correction and color conversion.

a) Color correction
The transparency of each color toner is not ideal, as shown above. Color correction compensates for the difference between ideal and actual characteristics. According to the actual transparency of each color toner, a proper masking coefficient is applied to R/G/B video signals to convert them into Y/M/C/Bk video signals.

b) Color conversion
In color conversion mode, a selected color (C/M/Y/R/G/B/Bk/W) of an original is converted into a different color on the copy. Up to 4 colors can be converted at one time. Colors that can be used after conversion are Yellow, Orange, Red, Magenta, Blue, Cyan, Green, Light Green, White, Black, Scan Color, and 3 User colors. Only one scan color can be selected at one time.

Color conversion is processed by changing the coefficients of the above color conversion table.

For example, when changing Yellow to Black, coefficients for the Yellow video signal become as follows:

Y:1, M:1, C:1, Bk:1

When changing Green to Light Green, coefficients for Green video signal should be as follows:

Y:1, M:0, C:0.5, Bk:0

c) UCR (Under Color Removal)

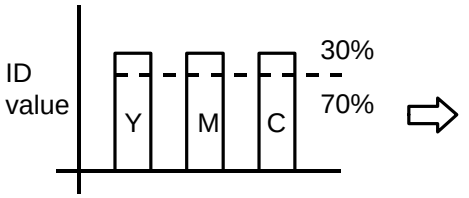


Fig. 1

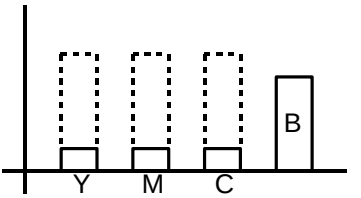


Fig. 2

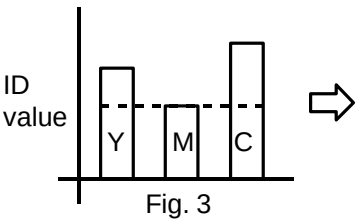


Fig. 3

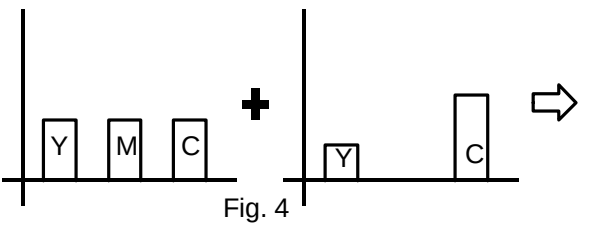


Fig. 4

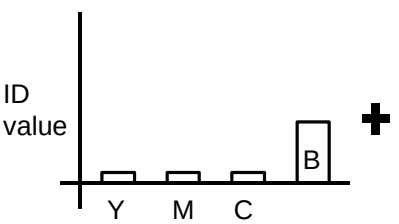


Fig. 5

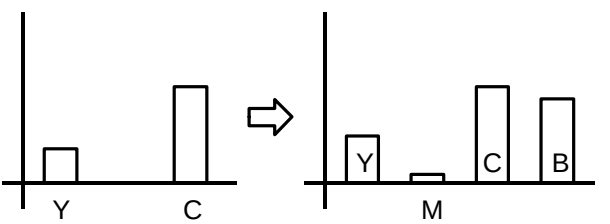


Fig. 6

If for each color (Y/M/C) the same quantity of toner is put on the paper, ideally the image should become black, but in reality it becomes dark blue.

To compensate for this, an equal portion of the ID value for each color is subtracted. This reduces the amount of color toner on the paper, and a proportional amount of black toner is added. This turns dark blue results into black.

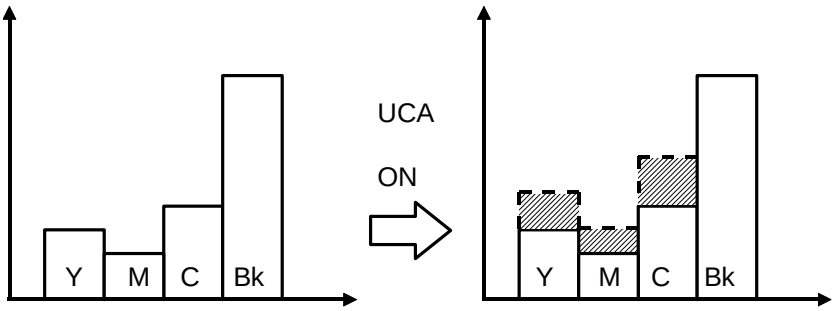
When a black image is copied, the ID values for all colors are equal (figure 1). For each color, the ID value is reduced by 70% (UCR: 70%) and a black ID value is added to compensate for the color ID reduction (figure 2).

When a color image is copied, the color ID values are different from one another (figure 3). But the ID values for this image can be decomposed into two parts (figure 4): A set of values equal to the lowest color ID value, and the remainder of the two higher values.

The part with equal values can be treated as a black image (figure 1 and 2), then added to the remainder part (figure 5). The final result gives us the copy ID value for each color and for black (figure 6).

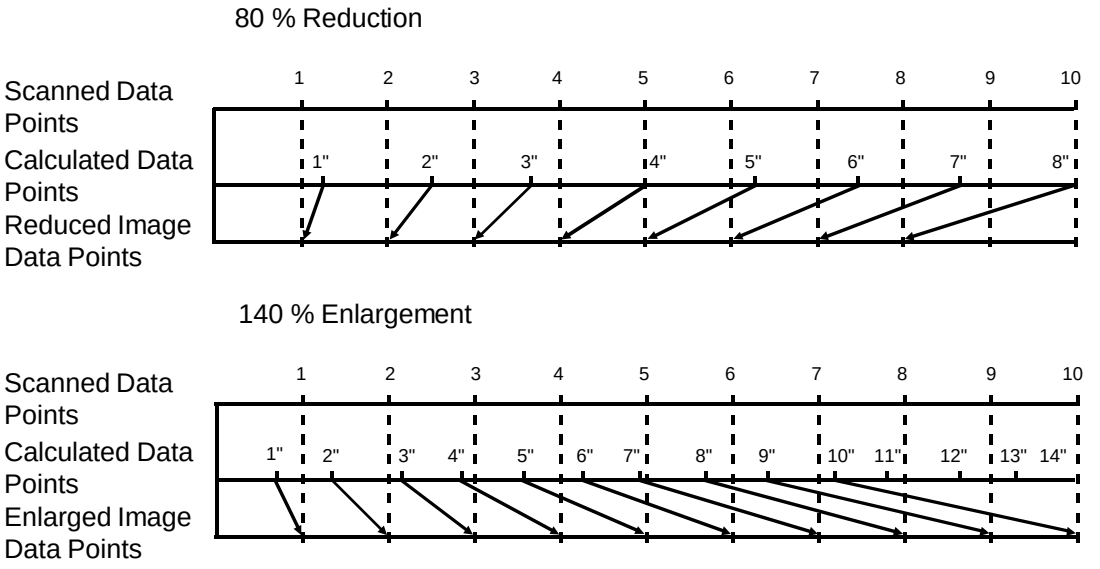
The UCR standard ratio in the photo mode is 70% on this model. But this ratio can be increased (made stronger) or decreased (made weaker) over 9 steps by using the user tools.

d) UCA (Under Color Addition)



Using only UCR processing, the copy image lacks depth. So, a specified ratio of toner is added for each color (Y/M/C). The amount of additional toner for a color is in proportion to that color's density. The UCA ratio is fixed and it is always ON for all modes (4 scan modes).

4.7.6 Main Scan Magnification


80 % Reduction
Scanned Data Points
Calculated Data Points
Reduced Image Data Points
1 2 3 4 5 6 7 8 9 10
1" 2" 3" 4" 5" 6" 7" 8"
140 % Enlargement
Scanned Data Points
Calculated Data Points
Enlarged Image Data Points
1 2 3 4 5 6 7 8 9 10
1" 2" 3" 4" 5" 6" 7" 8" 9" 10" 11" 12" 13" 14"

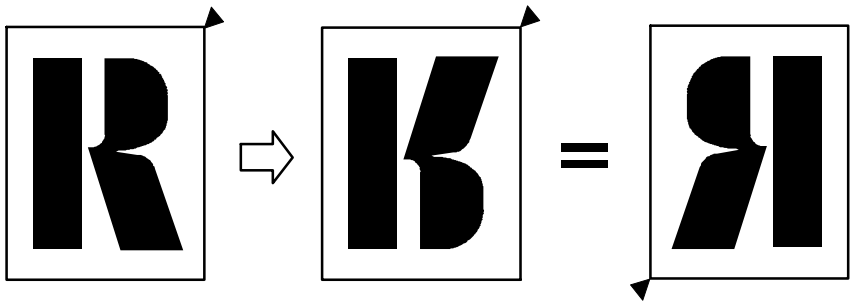
Reduction and enlargement in the sub scan direction is done by changing the scanner speed. However, reduction and enlargement in the main scan direction is handled by IPU board 1.

Scanning and laser writing are done at a fixed pitch (the CCD elements cannot be squeezed or expanded). So, to reduce or enlarge an image, imaginary points are calculated that would correspond to a physical enlargement or reduction of the image. The correct image density is then calculated for each of the imaginary points based on the image data of the nearest four true points. The calculated image data then becomes the new (reduced or enlarged) image data.

NOTE: The actual calculations for main scan magnification are performed following the polynomial convolution method. This mathematical process is beyond the scope of a service manual and will not be covered here.

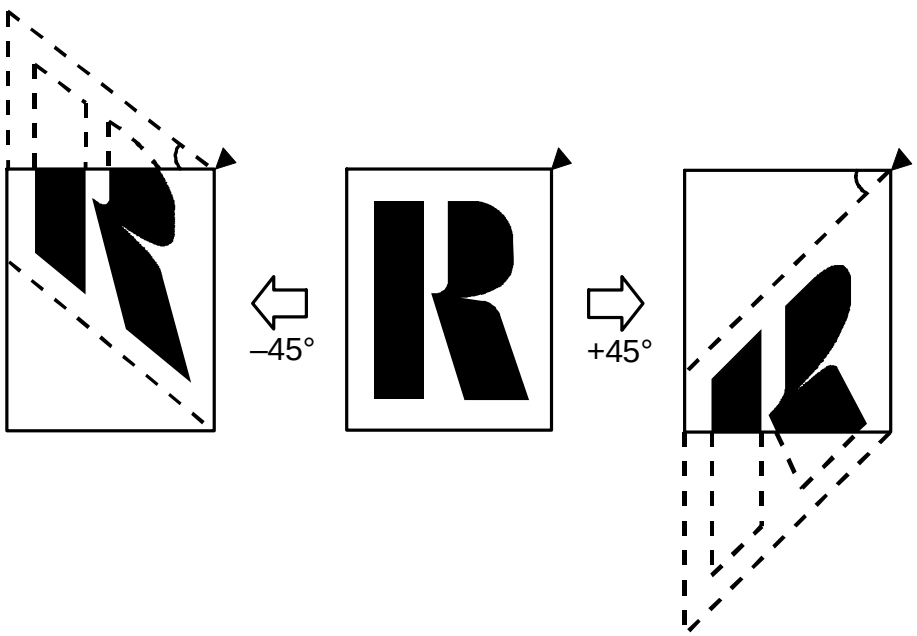
4.7.7 Image Creation

(1) Mirror Image



The image is inverted relative to the subscan axis.
The main scanning data is transferred to the laser unit from the end.

(2) Slanted Image



The image is slanted as shown above. The slant angle can be selected at ± 45 degrees by 1 degree steps. If a greater slant angle is selected, portions of the image might not be printed.

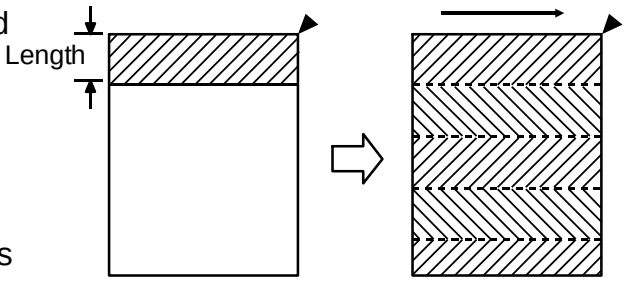
(3) Image Repeat

Part of the original image is copied repeatedly in the main scan direction.

There are three methods to designate the repeated image.

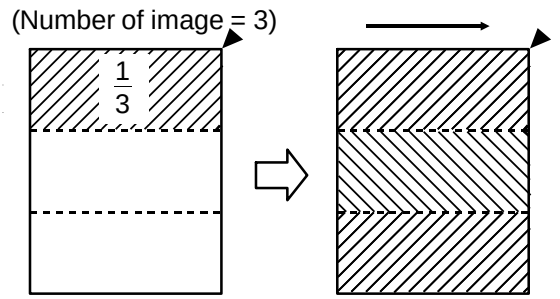
a) Size input

The original image designated with the length in the main scan direction is repeated as many times as will fit on the copy width. The length (size) can be entered with the number keys. It should be less than 300 mm.



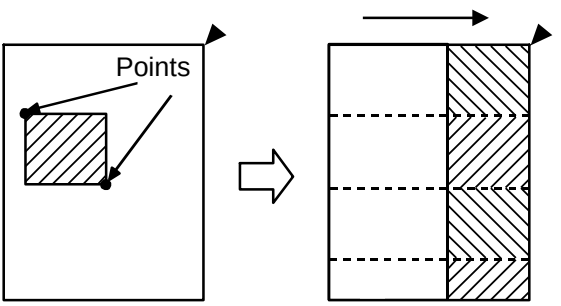
b) Number of images

The image is repeated in the main scan direction for the specified number of image repetition (2 to 9). The repeated image width is calculated from the number of repetition, paper width, and magnification.

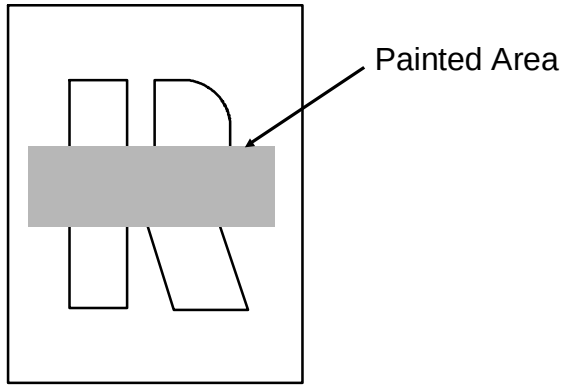


c) Editor input

When the display editor is equipped, the specified image with rectangle is repeated in the main scan direction. The repetitions are made one below the other, and are all aligned with the lead edge.

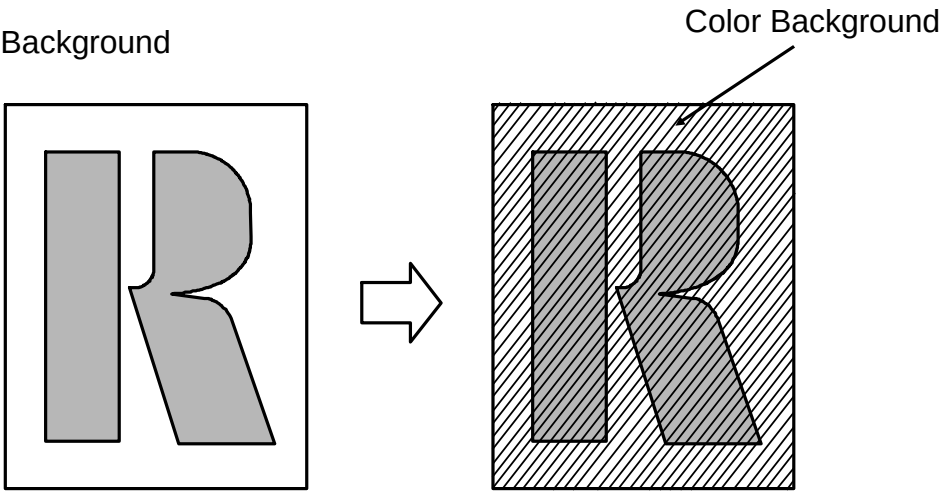


(4) Paint area



When the display editor is installed, the specified area is painted with a selected color. Colors that can be used for paint area are Yellow, Orange, Red, Magenta, Blue, Cyan, Green, Light Green, Black, and the 3 User Colors.

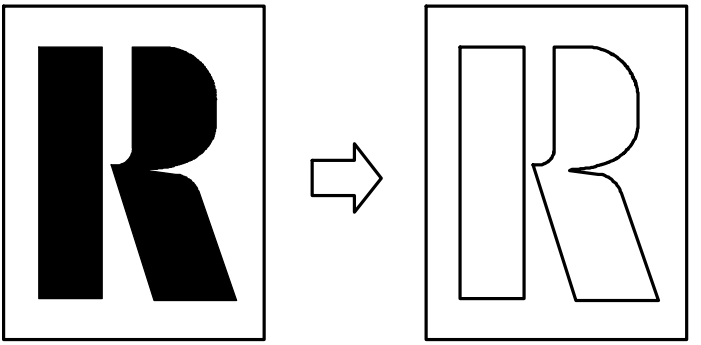
(5) Color Background



This mode adds the selected color to the entire image background.
The background can be any of 13 colors: Yellow, Orange, Red, Magenta, Blue, Cyan, Green, Light Green, Black, Scan Color, and the 3 User Colors.

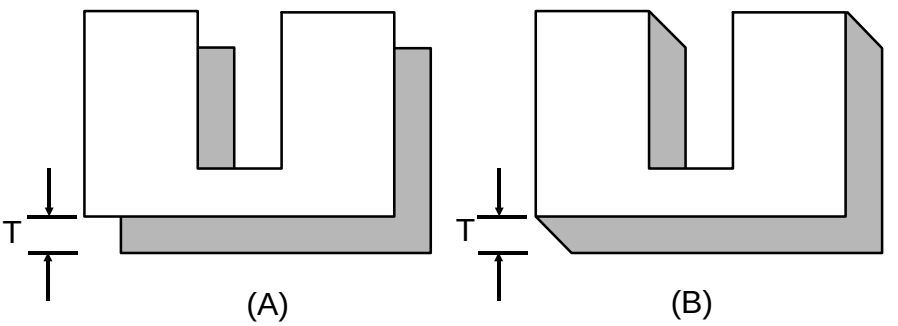
This mode is suitable for letter, and line originals since the color tone of photo/picture originals is changed due to the color of the background. The color background density can be adjusted lighter or darker over 5 levels by user tools.

(6) Outline image



When the outline mode is selected, the image data is converted into binary data and only the outline image is printed. The outline width can be selected from 0.25, 0.5, and 0.75 mm (0.01", 0.02", and 0.03").

(7) Shadow image



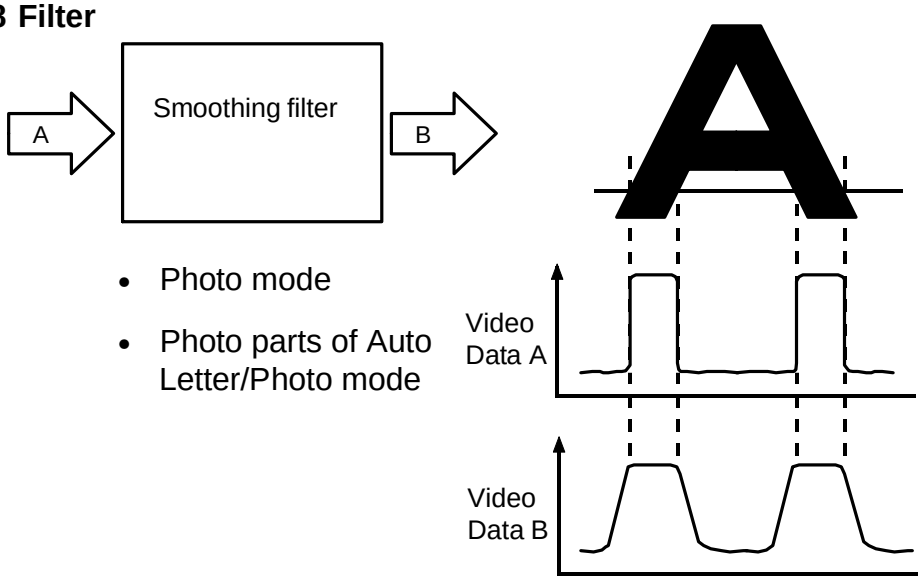
There are two types of the shadow image: offset shadowing (A) and block shadowing (B).

The shadow falls below and to the right of the image (at 45 degrees). The shadow can be any of the 13 colors: Yellow, Orange, Red, Magenta, Blue, Cyan, Green, Light Green, Black, Scan Color, and 3 User Colors.

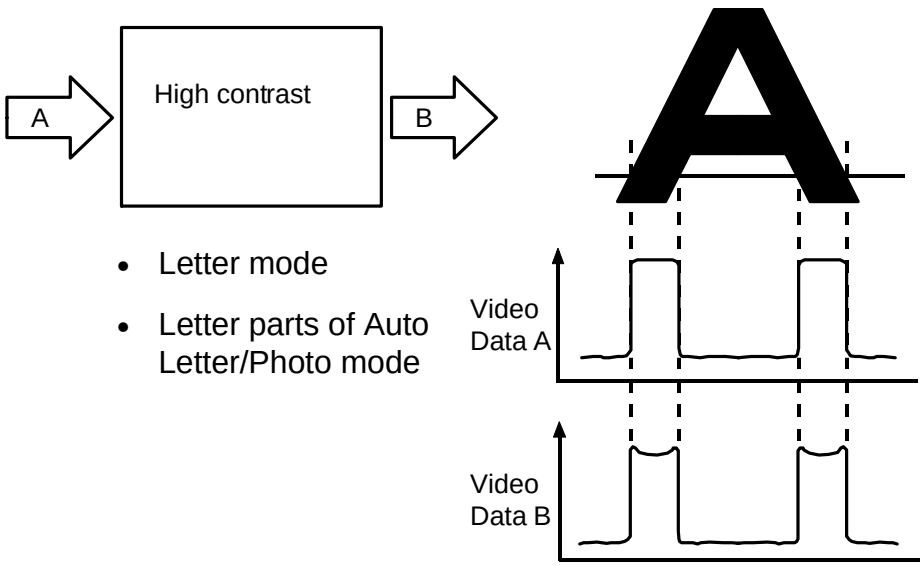
The width (T) of the shadow can be adjusted between 1 and 4 mm (0.04" and 0.16") in 1mm (0.04") steps.

When the shadow image and the outline image are selected together, the shadow should be the same color as the original. Otherwise, the image will be printed in a single color (selected shadow color).

4.7.8 Filter



- Photo mode
- Photo parts of Auto Letter/Photo mode



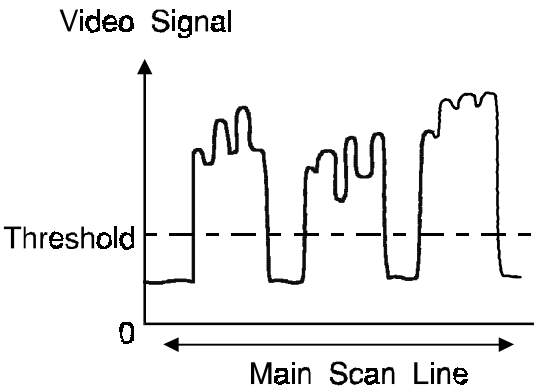
- Letter mode
- Letter parts of Auto Letter/Photo mode

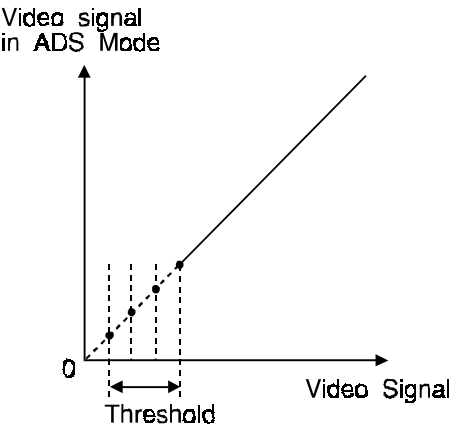
The filter in section 4.7.5 is the fixed one for the letter and photo parts of the original image. Other filters (smoothing filter and high contrast filter) are used here again to improve the printed image.

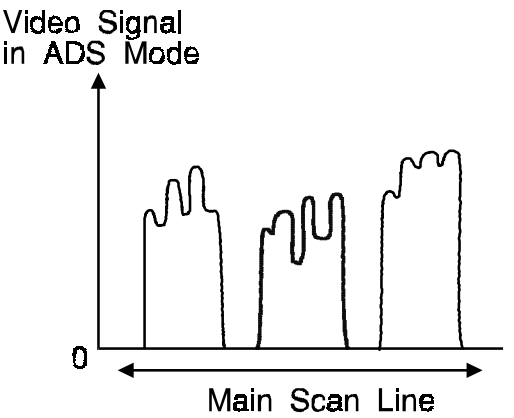
The smoothing filter improves the image by smoothing the gradient of the half tone areas. The high contrast filter improves letters by contrasting the edge of the image.

By changing the effect of the smoothing or high contrast filter, the image can be made sharper or softer. It can be adjusted over 5 levels from the image adjustment screen.

4.7.9 Auto Image Density (ADS)







Auto image density mode can be selected in black or single color (1C or 2C) modes. This mode prevents the background of an original from appearing on copies.

The video signals from the original background do not include high frequency components and their levels are lower than those from the actual image. From these characteristics, video signals corresponding to the background are judged in this block and their output levels become zero. This treatment is done for each main scan line through the whole sub scan direction.

The threshold level (actually it is a range) of video signals for judging the background can be changed over 4 levels by user tools.

Unlike analog copiers, manual image density can be adjusted together with auto image density mode. This is useful when making copies from an original that has light image density with background.

4.7.10 Printer Gamma Correction

(1) YMCBk Gamma

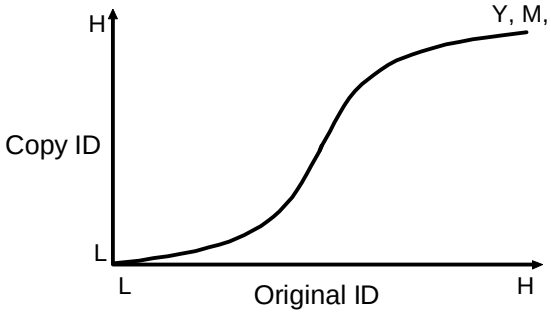


Fig. 1

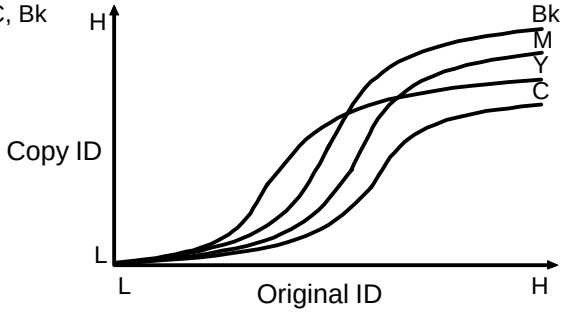


Fig. 2

Ideally, the gamma curves for Yellow, Magenta, Cyan, and Black should be identical, as shown in figure 1, but they are not because electrical component always vary slightly, resulting in varying gamma curves, as shown in figure 2. To compensate for this discrepancy, the gamma curve for each color can be adjusted by a service program (Page 4-3 to 4-6).

The gamma curve can be adjusted through 4 different modes: ID max, High ID, Low ID, and Middle ID

a) ID max

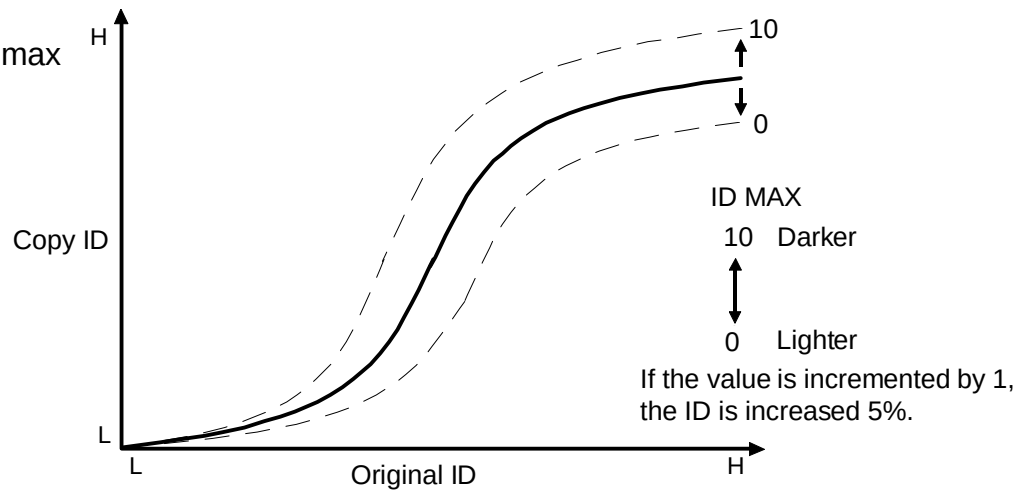


Fig. 3

This mode is used to adjust the total image density level as shown in the figure 3.

This adjustment should be done when replacing the OPC drum, or the specified ID (Level 10 of the color gradation scale on the C- 4 test chart) cannot be obtained even after performing the process control self check in the SP mode (Page 2-6, No.210). If ID max is adjusted, the High, Low, and Middle ID's should also be adjusted.

b) High ID

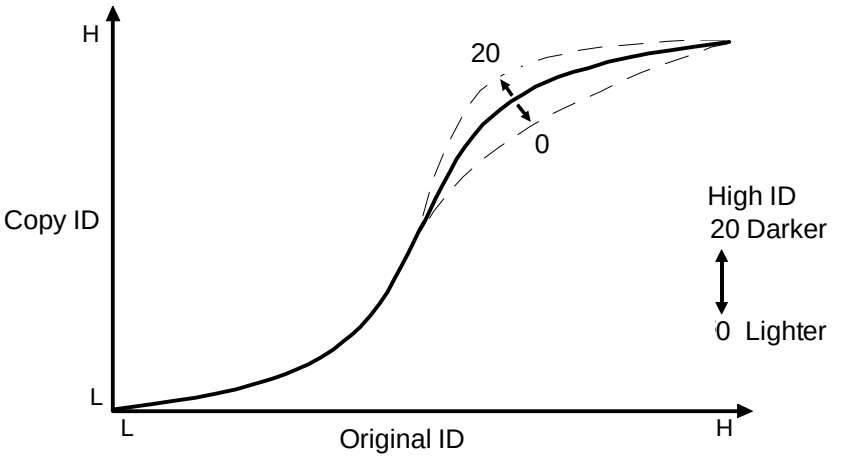


Fig. 4

The High ID mode should be used to adjust the image density between Level 6 and Level 9 of the color gradation scale on the C-4 test chart (figure 4).

c) Low ID

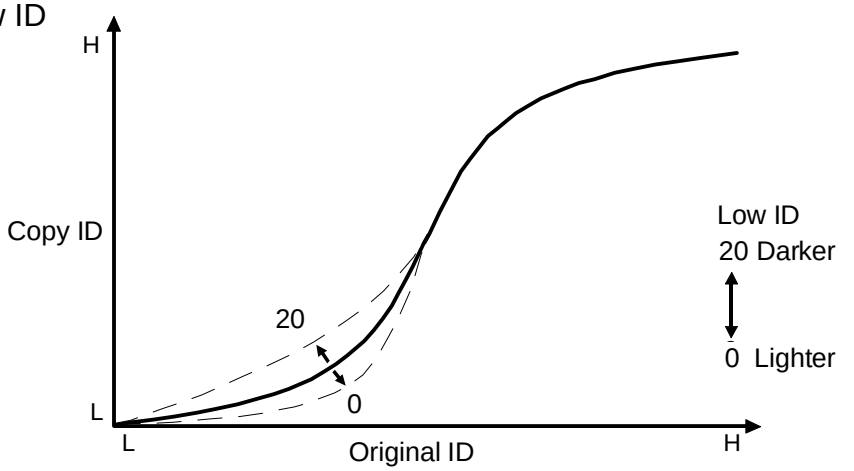
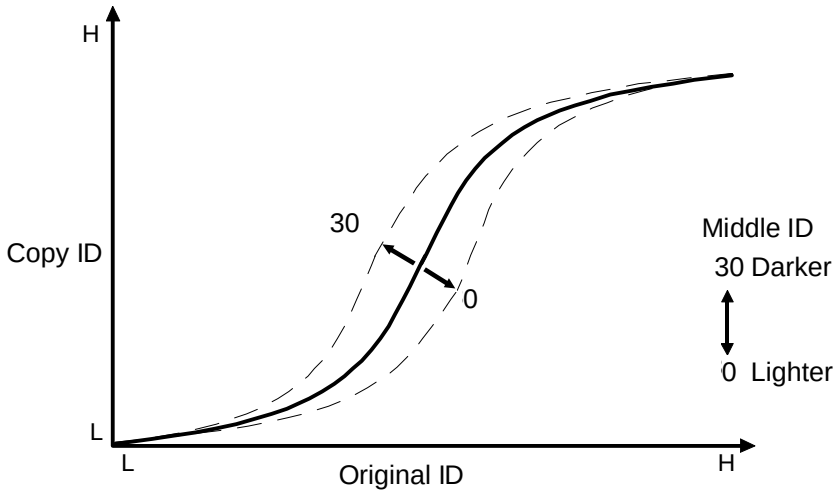


Fig. 5

The Low ID mode should be used to adjust the image density between Level 2 and Level 5 of the color gradation scale on the C-4 test chart (figure 5).

d) Middle ID



The Middle ID mode should be used to adjust the image density between Level 3 and Level 7 of the color gradation scale on the C-4 test chart (figure 6).

(2) Image Density

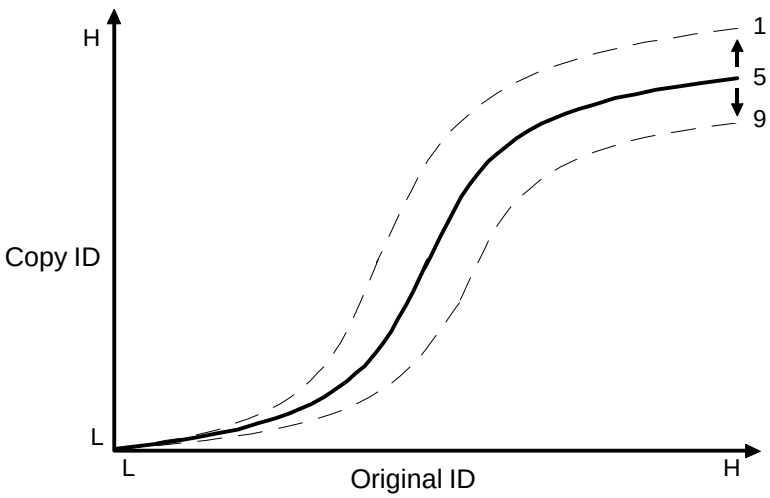
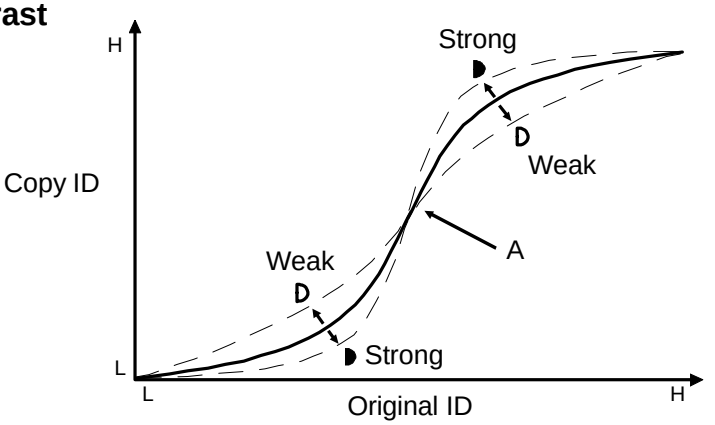


Image density can be adjusted by the Manual Image Density setting in the touch panel display. There are 9 levels of image density.

(3) Contrast



Contrast between light parts and dark parts of the image can be adjusted over 9 levels by the Contrast setting of Image Adjustment in the touch panel display. The slope of the line in the graph changes, but stays centered around point "A".

(4) Color Balance

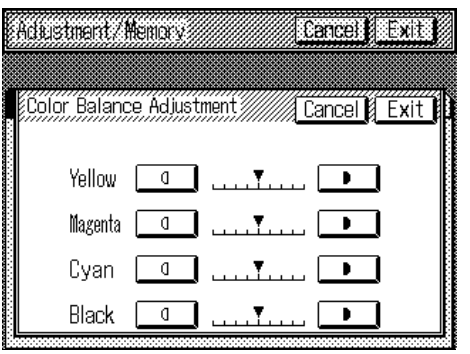
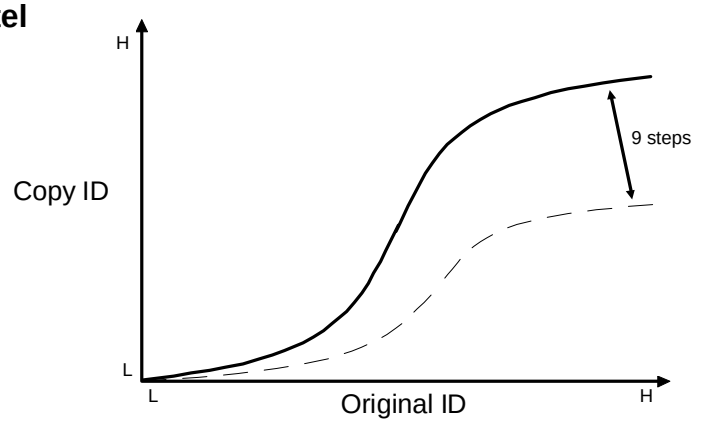


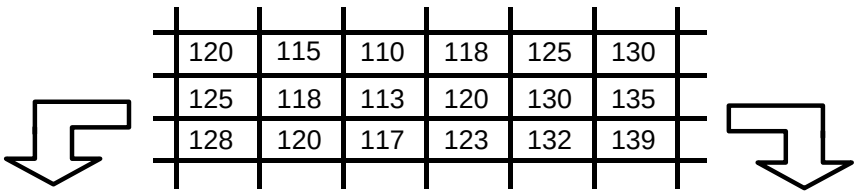
Image density control changes every color density setting at the same time. But each color density setting can be changed independently by the Color Balance Adjustment of Image Adjustment in the touch panel display.

(5) Pastel

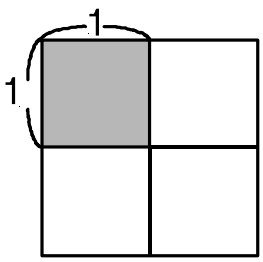


This function can be used to decrease the copy density more than by using the image density control. The copies are made in pastel tones.

4.7.11 Gradation Treatment

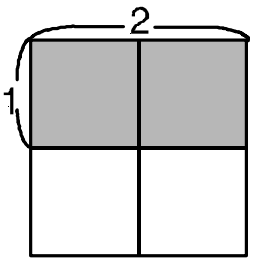


<Letter Mode>



120	115	110	118	125	130
125	118	113	120	130	135
128	120	117	123	132	139

<Photo Mode>



235	0	228	0	255	0
243	0	233	0	255	10
248	0	240	0	255	16

On this model, the following gradation treatment is applied to improve the image quality:

Letter mode and letter parts in Auto L/P: 1 x 1 dot
Photo mode and photo parts in Auto L/P: 2 x 1 dot (Main x Sub)

1 x 1 dot processing for the letter mode attaches importance to the resolution, while 2 x 1 dot dither processing for the photo mode attaches importance to the gradation.

Each dot (pixel) has a video signal level between 0 and 255. In 2 x 1 dither processing, the levels of 2 dots are summed up and the total level is written (exposed by the laser beam) at the first dot. If the total level exceeds 255, the remainder is written at the second dot. Therefore, if you look at the photo parts of the copy with a scope, you can recognize the alternating lines in the main scan direction.

1 x 1 dot processing corresponds to "Full Dot Pattern" and 2 x 1 dot dither processing corresponds to "1 Dot Sub Scan Lines" of the test patterns (SP mode, Page 2-3, No.205).

4.7.12 Video Controller

The video controller has the following functions:

(1) It produces the final video signal data to be sent to the LD unit.

(2) It controls the writing timing from the IPU board, corresponding to the synchronizing signal from the synchronizing detector board.

(3) It decides the start timing of main scan writing. This corresponds to side-to-side registration.

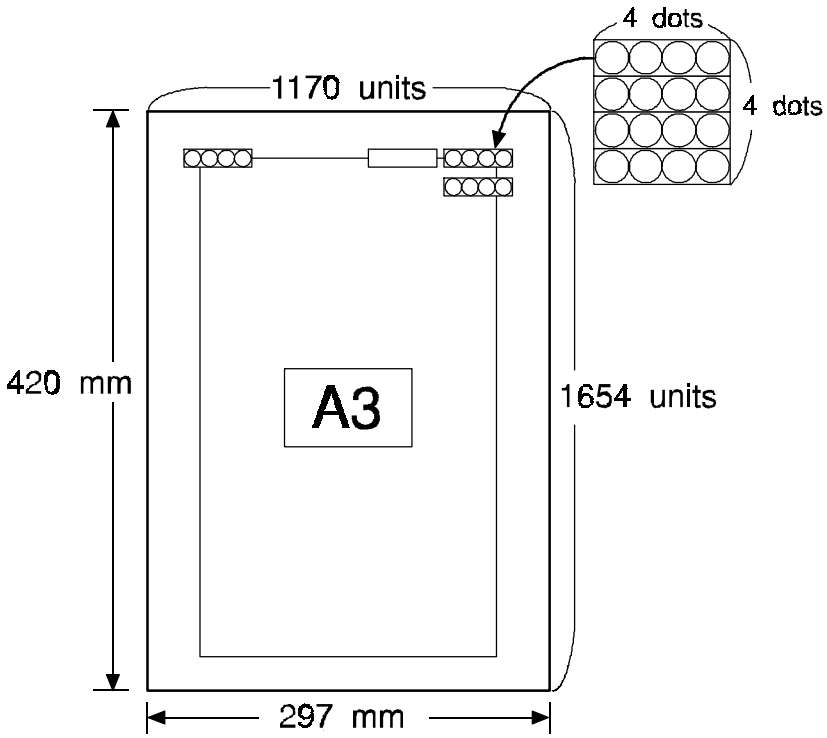
(4) It changes the clock frequency of the Y/M/C/Bk video signals from 14.318 MHz to 18.6 MHz for LD writing.

(5) It sends a start signal for the transfer belt in order to align the LD writing position with the image position on the transfer belt.

(6) It sums up the LD output levels to calculate the image area integration data. (This calculation is done by sampling one dot out of every three dots.) The data is sent to the main control board to be used for toner supply control.

(7) It outputs the video data when printing the test patterns and the gray scales.

4.7.13 Area Data Processing



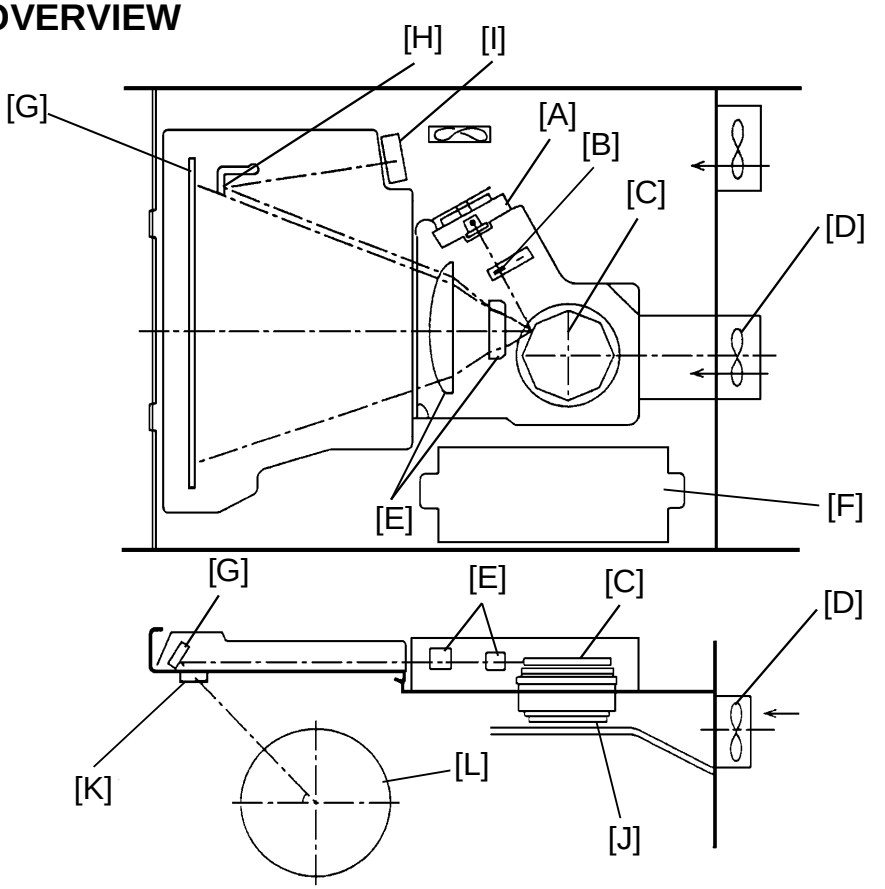
When using the display editor, the scanned image is stored in the Area block (see section 4.5). The Area block memory size is 2 M-bit and it can hold an entire A3 image. One unit of Area block memory corresponds to a 4 x 4 dot section of the original image.

For this reason, the screen pointer of the display editor covers a 4 x 4 dot area of the original, so users must allow for a tolerance of about 0.25 mm (0.01") between the editor and actual images.

Also, logging data text is processed in the Area block so that the resolution for data text is much lower. The Area block has fonts to speed up the output.

5. LASER EXPOSURE

5.1 OVERVIEW



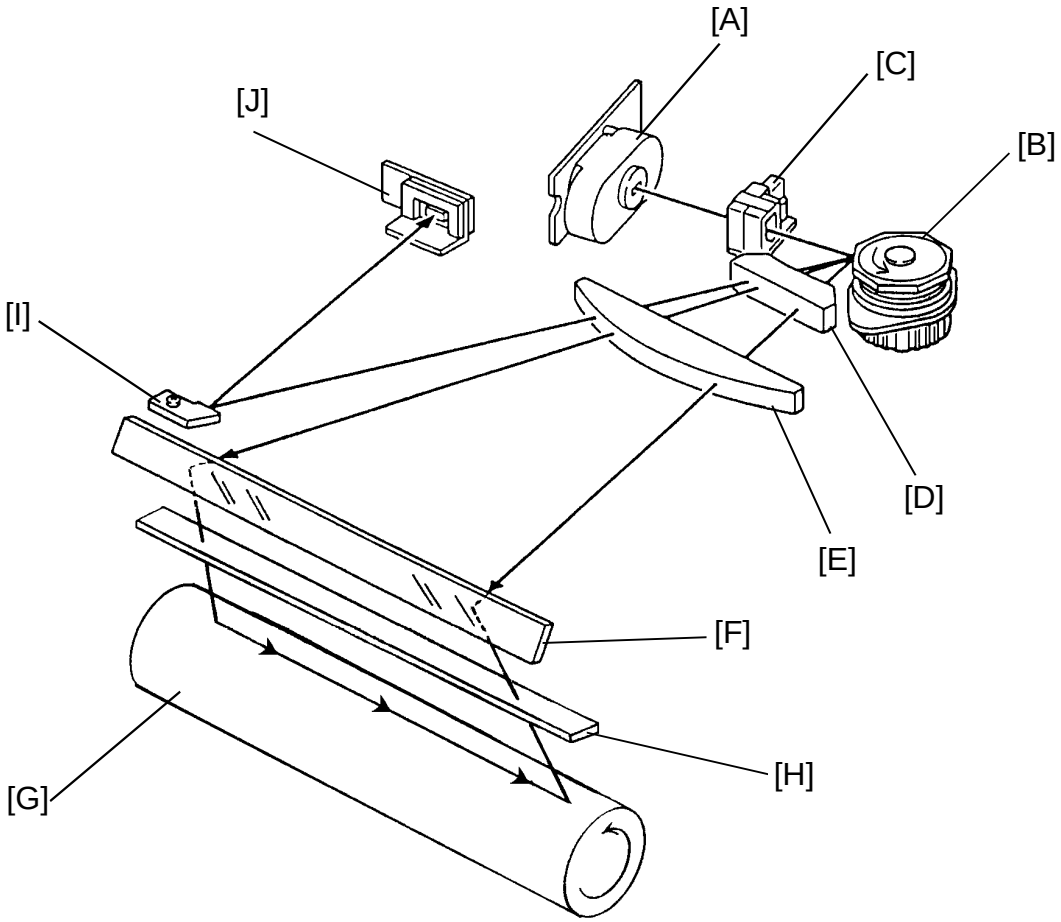
A: Laser Diode Unit
B: Cylindrical Lens
C: Polygon Mirror
D: Polygon Motor Cooling Fan
E: fθ Lenses
F: Polygon Motor Drive Board
G: Drum Mirror
H: Synchronizing Mirror
I: Laser Synchronizing Detector Board
J: Polygon Motor
K: Toner Shield Glass
L: OPC Drum

This machine uses a laser diode to produce electrostatic images on an OPC (organic photoconductor) drum [L]. The laser diode unit [A] converts image data from the IPU board into laser pulses, and the optical components direct these pulses to the OPC drum.

To produce a high quality copy image, there are 256 gradations for the laser pulses, controlled through power modulation and pulse width modulation.

Exposure of the drum by the laser beam creates the latent image. The laser beam makes the main scan while drum rotation controls the sub scan.

5.2 OPTICAL PATH



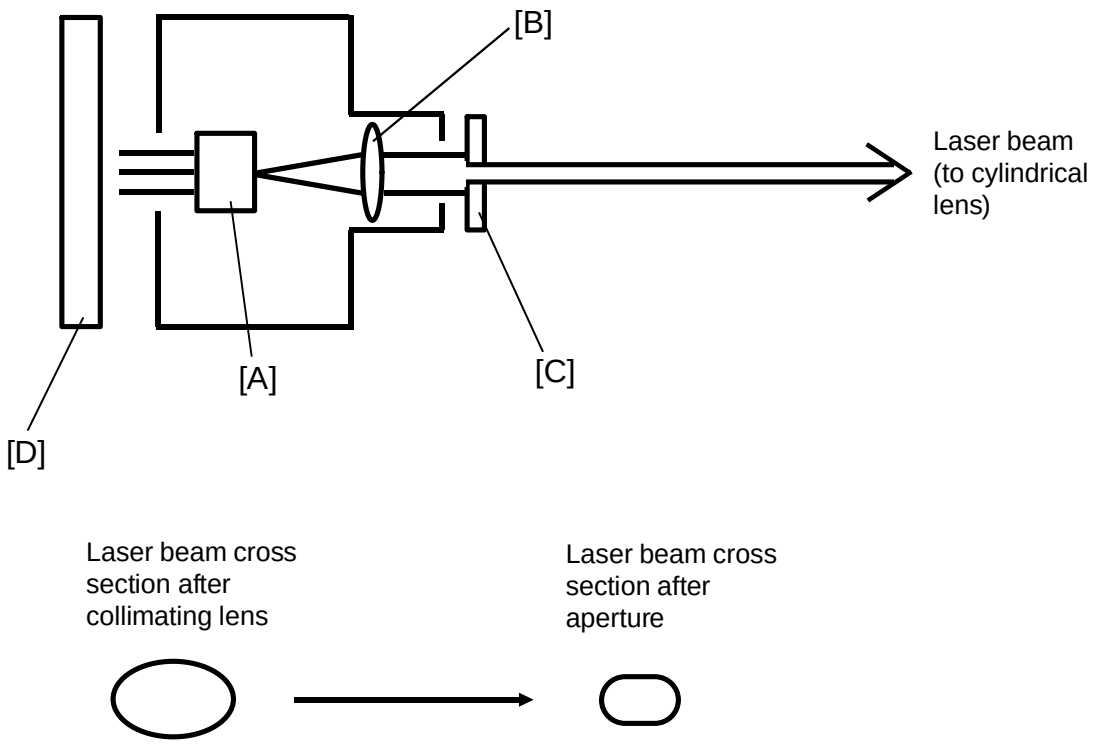
The output path from the laser diode to the OPC drum is shown above.

The LD unit [A] outputs the laser beam to the polygon mirror [B] through the cylindrical lens [C].

The polygon mirror reflects a full main scan line with a single surface of the mirror. The laser beam goes through the 1st fΘ lens [D] and 2nd fΘ lens [E]. The drum mirror [F] reflects the laser beam to the drum [G] through the toner shield glass [H].

To determine the main scan starting position, the laser beam is reflected from the synchronizing mirror [I] to the laser synchronizing detector board [J].

5.2.1 Laser Diode Unit

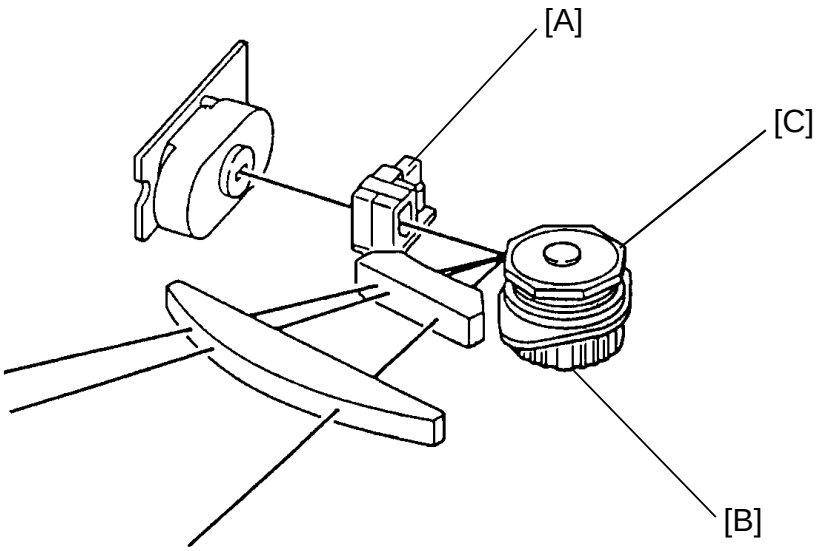


The laser diode unit consists of the laser diode [A], collimating lens [B], aperture [C], and LD drive board [D].

The LD drive board excites the laser diode, causing it to radiate coherent light at 780 nm with about 10 mW power.

The collimating lens forms the radiating beams into a parallel beam.

After the collimating lens, the aperture alters the beam, giving it a smaller cross-section, as shown above.



5.2.2 Cylindrical Lens

The laser beam is focused by the cylindrical lens [A], and sent to the polygon mirror.

5.2.3 Polygon Mirror

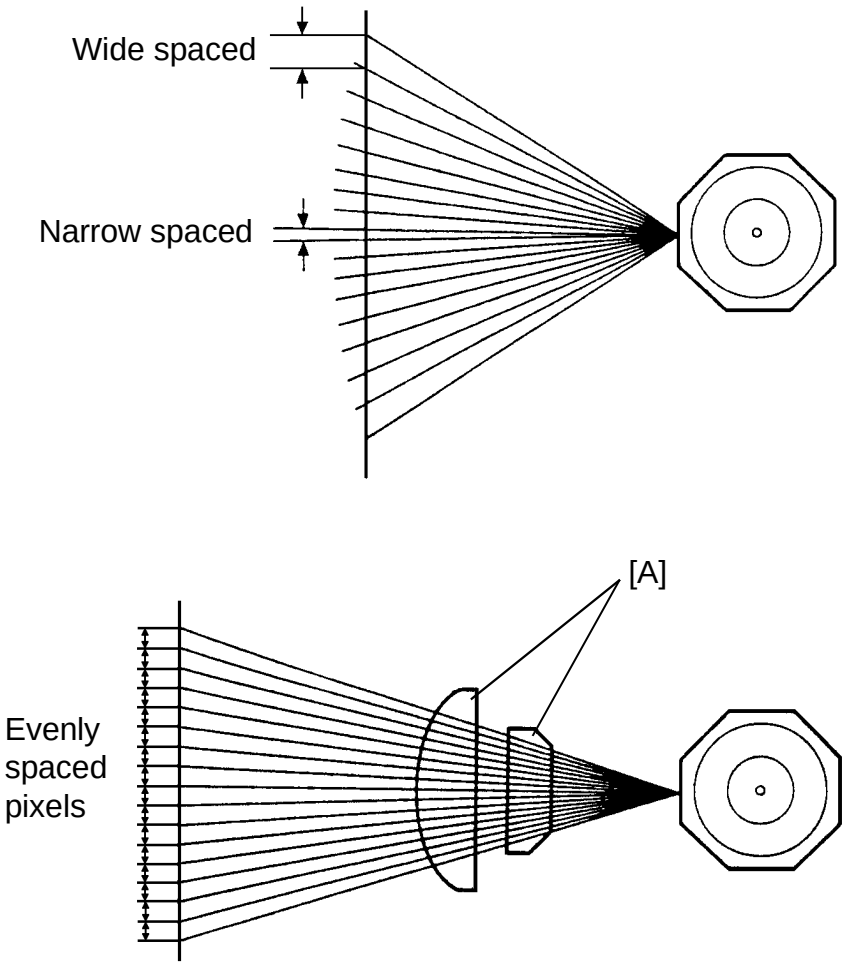
The polygon mirror assembly consists of the polygon motor [B] and the polygon mirror itself [C].

As the mirror rotates, it reflects the laser beam across the OPC drum, via the fΘ lens and the drum mirror. One main scan line is made by the beam reflected from one face of the polygon mirror.

The mirror is precisely ground to enable high reflectivity and to prevent pixel (picture element) misalignment on the drum in both the main scan and sub scan directions.

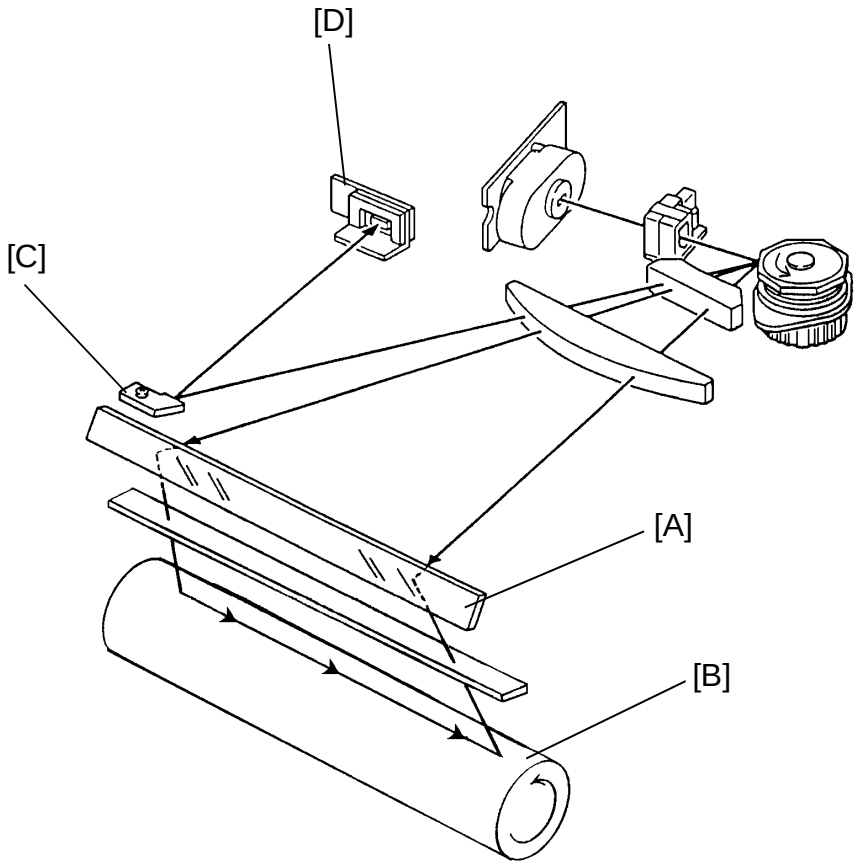
The polygon mirror motor rotates at 21,260 rpm. One rotation corresponds to eight main scans.

5.2.4 F-Theta Lenses



The angles between pixels are equal. However, if the beam were to go directly to the drum as shown in the upper illustration, the spacing between pixels would differ according to the angle of the beam. The pixels near the end of the drum would be further apart than those near the middle of the drum. The pixels would also be slightly thicker toward the ends of the drum than in the middle.

The fΘ lenses [A] correct for this by deflecting the beam slightly inward to insure uniform picture element spacing and diameter. The fΘ lenses also correct for irregularities in the polygon mirror face, focusing irregular beams onto the correct part of the drum.



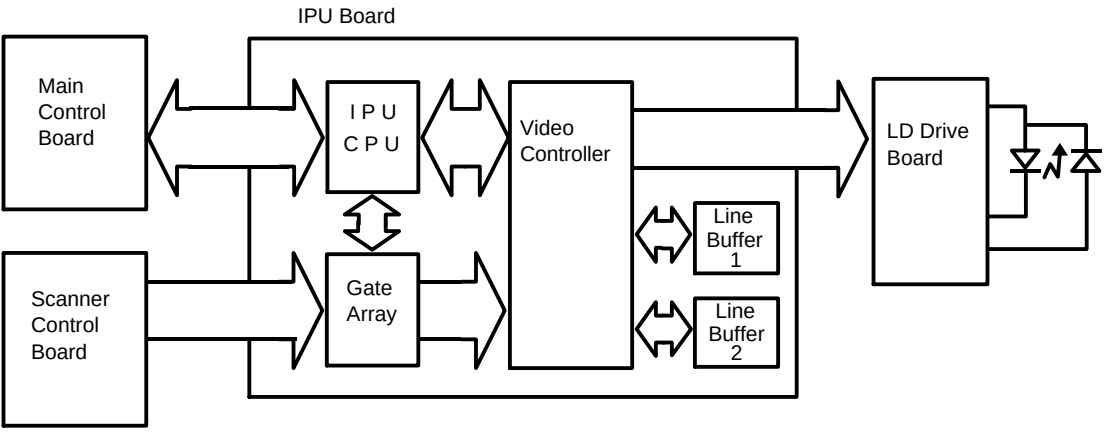
5.2.5 Drum Mirror

The drum mirror [A] reflects the corrected laser beam to the drum [B].

5.2.6 Laser Synchronizing Mirror and Detector Board

At the start of each scan line, the synchronizing mirror [C] reflects the laser beam to the laser synchronizing detector board [D] as shown above. Activation of this detector signals the start of main scan writing by the laser beam.

5.3 LASER EXPOSURE CONTROL



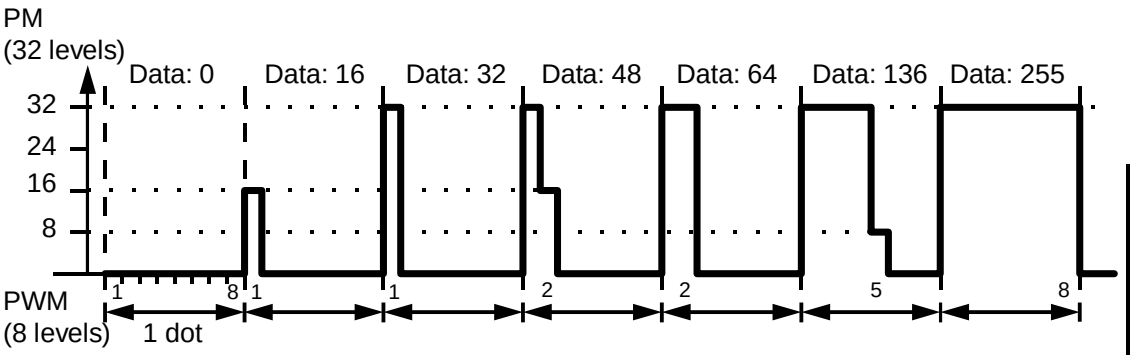
The IPU-CPU in the IPU board communicates with the main control board through serial data transmission.

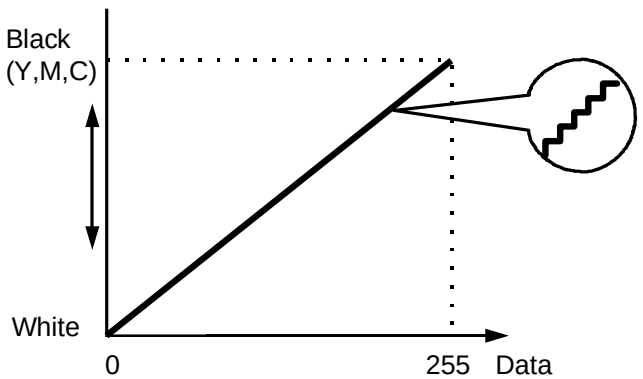
The image data scanned from an original via the CCD board is processed in the scanner control board. Then the processed image data is sent to the gate array in the IPU board. The gate array sends the 8 bit video data to the video controller. The video controller holds it in one of two line buffers (line buffer 1 or line buffer 2). The two line buffers are used alternately and hold one scan line of video data each.

When it is time for the data to be written to the drum, the gate array sends the 8 bit video data from the line buffer to the LD drive board.

The IPU-CPU controls the writing timing of the laser beam to the drum for both the main and sub scans.

5.4 GRADATION CONTROL





To make the latent image, the laser beam exposes the image area of the drum surface. When the laser beam exposes the drum, the longer it is on and the stronger its intensity is, the darker the developed image becomes.

For one dot, the laser on time is controlled by pulse width modulation (PWM). The laser on/off timing is controlled by a pulse signal. Modulating (changing) the width of the pulse makes the on time of the laser longer or shorter. There are eight levels, meaning eight different laser on times for each dot.

While the laser is on to make one dot, the intensity of the laser is controlled by power modulation (PM). The laser's intensity is controlled by the amount of current sent to the laser diode. Modulating the power makes the laser brighter or dimmer. There are 32 power levels, or laser intensity levels, for each PWM level.

The power is modulated ONLY at the end of the on/off cycle. If the PWM level is 2, the laser is on for 2/8 of a cycle. It will be at full power for 1/8 of a cycle and then the power will modulated to the required level for 1/8. If the PWM level is 5, the laser is at full power for 4/8 of a cycle, and then it will be modulated for 1/8. If the PWM level is 1, the laser is not at full power, and is modulated for 1/8 of a cycle. (See graph.)

By using the 8 PWM levels through the PWM IC and the 32 PM levels through the current drive IC on the LD drive board, the latent image can have 256 (= 8 x 32 = 2^8) gradations. These 256 gradations can be described by the 8 bit video data, data 0 to data 255 as shown above.

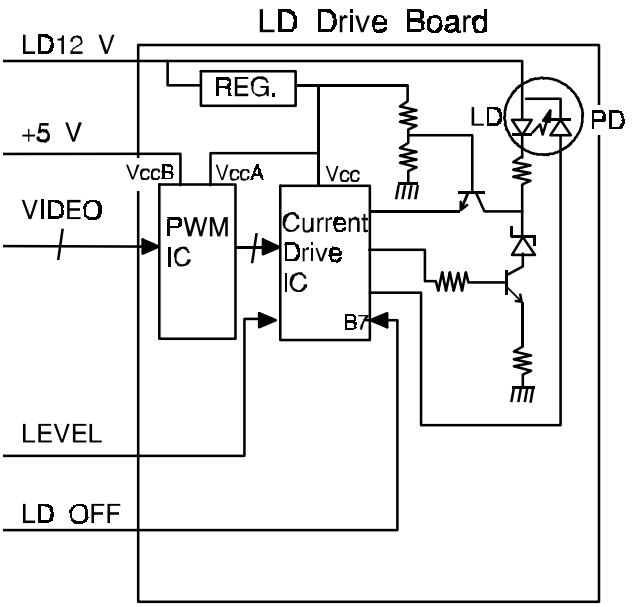
Since each color (Y, M, C) can have 256 gradations, the theoretical color gradations reproduced by this copier is as follows:

Y M C

256 x 256 x 256 = 16,777,216

2^8 x 2^8 x 2^8 = 2^{24}

5.5 AUTO POWER CONTROL (APC)

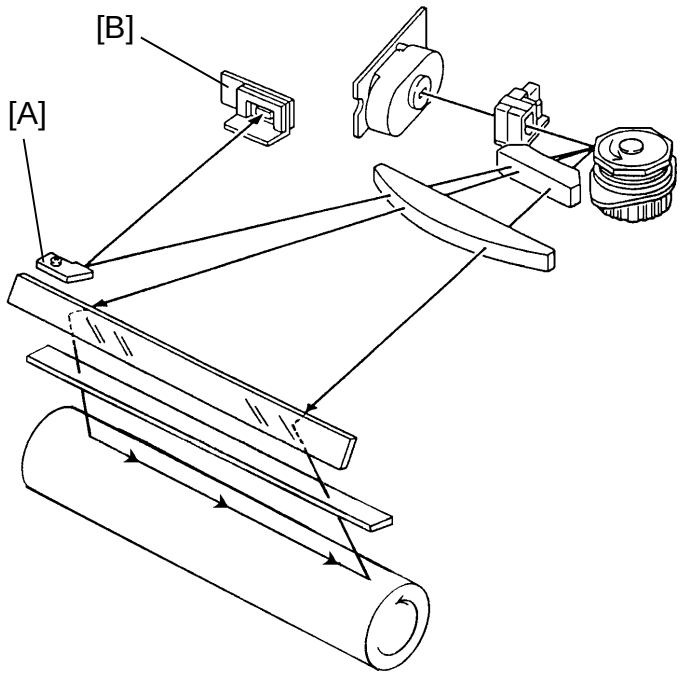


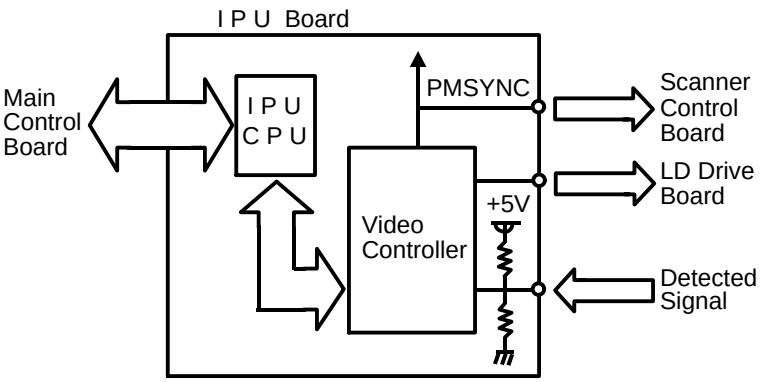
Even if a constant electric current is applied to the laser diode, the intensity of the output light changes with the temperature. The intensity of the output decreases as the temperature increases.

In order to keep the output level constant, the output light intensity is monitored through a photo diode enclosed in the laser diode. The photo diode passes an electrical current proportionally according to the light intensity and regardless of the temperature change.

Whenever the main switch is turned on, the current drive IC in the LD drive board excites the laser diode with at full power (32nd PM level) and stores the current data of the photo diode as a reference in the IC. The current drive IC monitors the current passing the photo diode. Then it increases or decreases the current to the laser diode as necessary, comparing with the reference current data. Such auto power control is done in real time while exciting the laser diode.

5.6 LASER SYNCHRONIZING DETECTOR



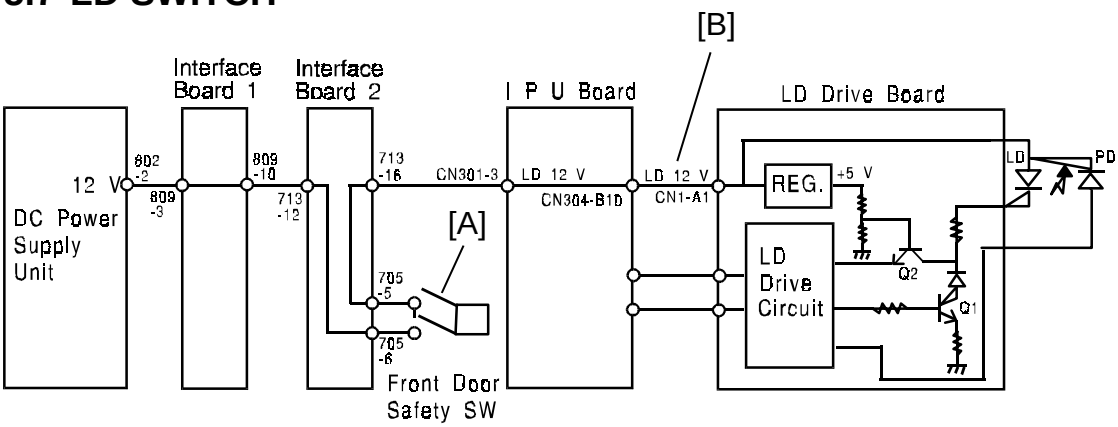


The start of each scan line is controlled as follows:

The synchronizing mirror [A] reflects the laser beam to the synchronizing detector board [B]. The detector board has an IC with a photo diode. When the laser beam reaches the photo diode, a synchronizing signal is sent to the video controller on the IPU board. Then the video controller signals the start of main scan writing by the laser beam.

At the same time the video controller also outputs a PMSYNC signal which is used to control the operation of the IPU board and scanner control board.

5.7 LD SWITCH

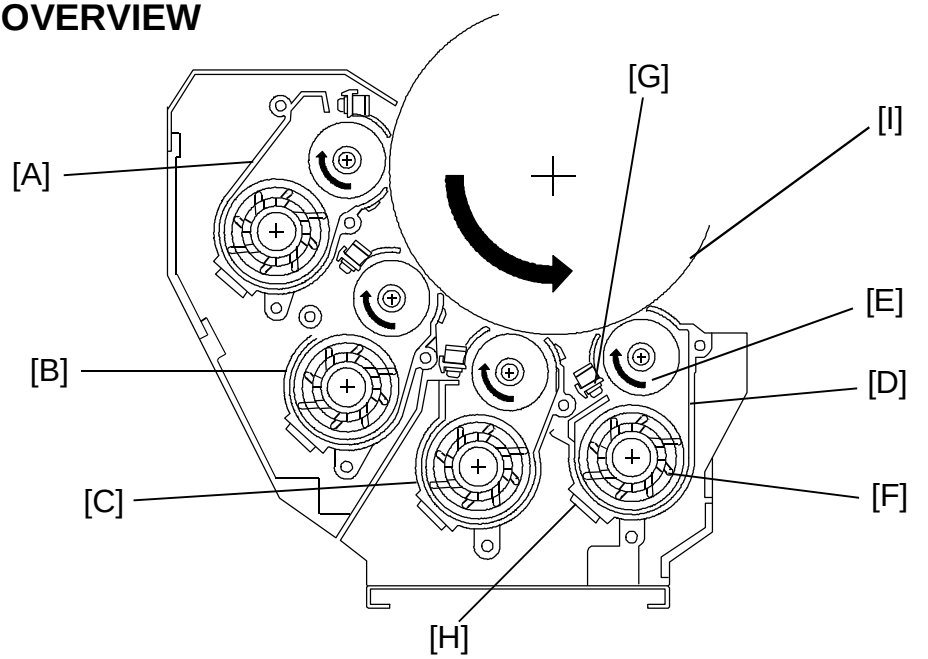


To ensure that the laser beam does not inadvertently expose the drum at servicing, there are two LD switches located at the front door. These two switches [A] are installed in series on the LD12 V line coming from the dc power supply unit through interface boards 1 and 2.

When a front door is opened, the switches cut the power to CN301-3 (LD12 V) of the IPU board. Then, the DC 12 volts (LD12 V) for LD power [B] cannot be supplied to the LD drive board.

6. DEVELOPMENT

6.1 OVERVIEW



There are four sections in the development unit. From the left they are the black development section [A], the cyan development section [B], the magenta development section [C] and the yellow development section [D]. Each development section has a sleeve roller [E], dual mixing roller [F], doctor plate [G] and toner density sensor [H].

The development unit is separated in two parts. The black and cyan development unit make up one part, the magenta and yellow development unit make up the other part.

The color development drive motor drives the dual mixing rollers in the cyan, magenta, and yellow development sections. The black development drive motor drives those in the black development unit.

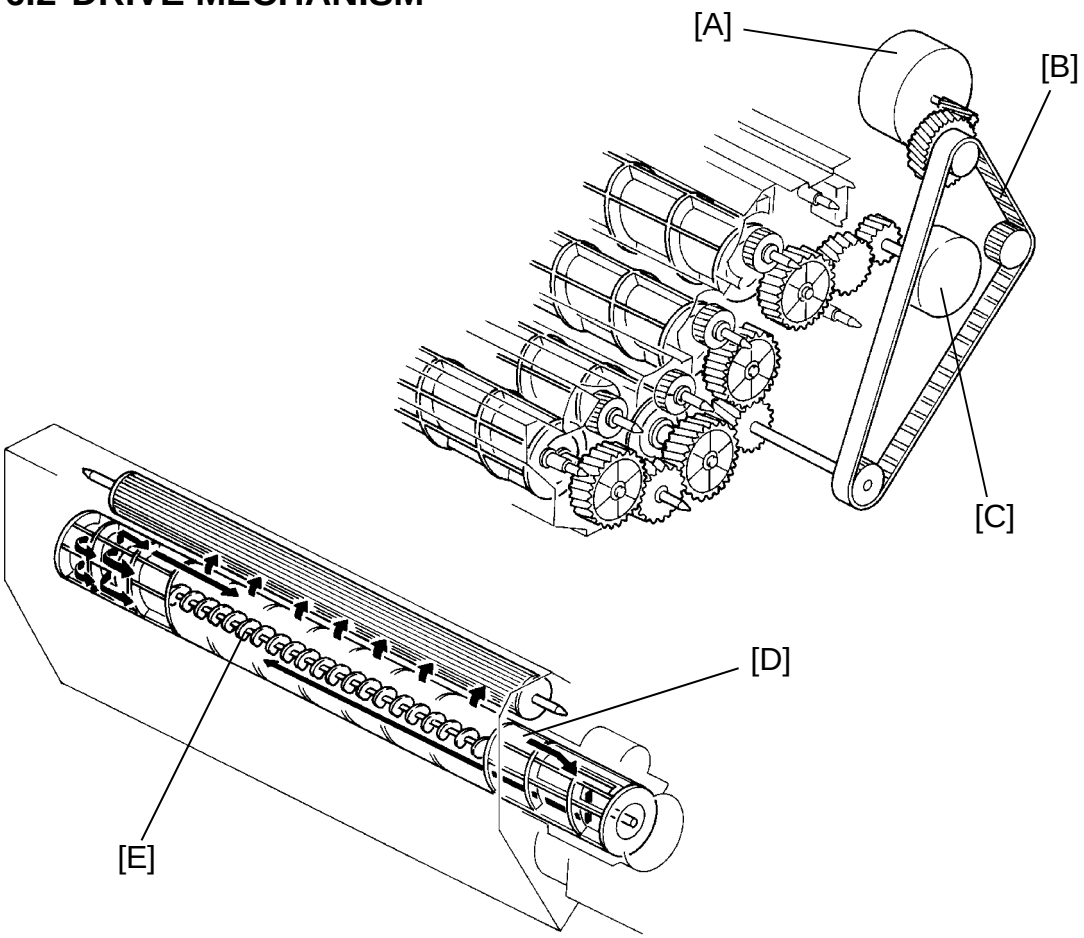
The sleeve rollers in each section are driven by independent sleeve motors. When the sleeve turns clockwise, developer is carried to the OPC drum [I]. When the sleeve turns counterclockwise, all the developer left on the sleeve roller surface is returned to the development section.

The developer is trimmed to the desired thickness by the doctor blade, and it is then carried to the OPC drum where the latent image is developed.

Each development section can hold 400g (2 packages) of developer. Developer is supplied and removed by using SP modes.

Black is developed first, then in order, cyan, magenta, and yellow.

6.2 DRIVE MECHANISM



1) Developer mixing

When the color development drive motor [A] turns, C, M, Y development drive gears are driven via a timing belt [B].

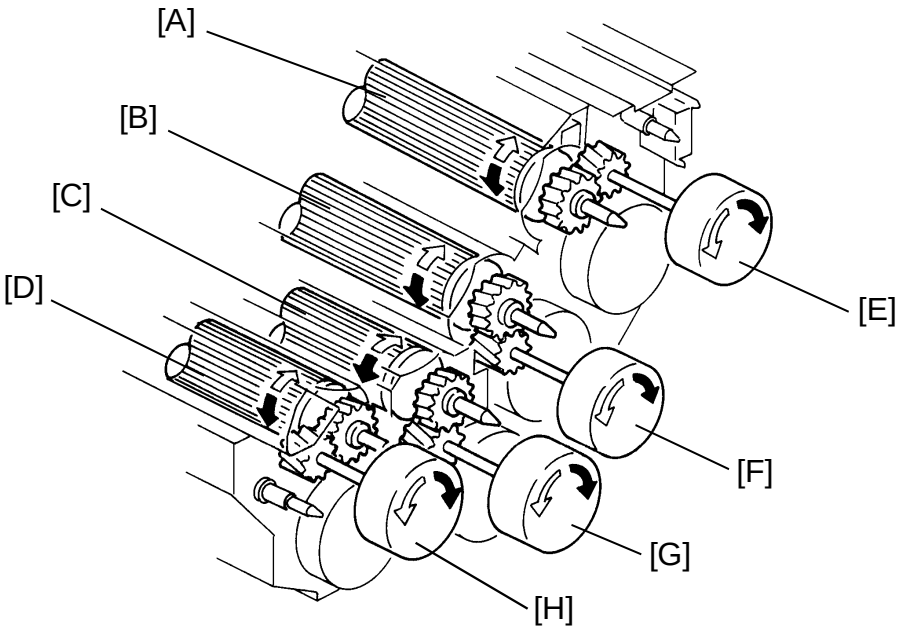
The black development drive gear is driven by the black development drive motor [C] independently.

The life of the developer has a direct proportional relationship with its mixing time. The black and color mixing drive sources are separated to let the color developer mixture rest during the black copying process.
This lengthens the life of the developer.

2) Dual mixing

As the dual mixing roller turns, the outer paddle [D] carries developer to the front and the inner auger [E] carries developer to the rear.

6.3 DEVELOPER SUPPLY AND RELEASE



The development sleeve rollers are driven separately by sleeve motors, not by the development drive motors.

[A]:	Black sleeve	[E]:	Black sleeve motor
[B]:	Cyan sleeve	[F]:	Cyan sleeve motor
[C]:	Magenta sleeve	[G]:	Magenta sleeve motor
[D]:	Yellow sleeve	[H]:	Yellow sleeve motor

When the sleeve motors turn in the direction of the black arrows, developer is carried up to the OPC drum. When the motors turn in the direction of the white arrows, developer is returned to the development unit. Only one color development section at a time can send developer to its development sleeve roller. The developer inside the other color sections is not carried up to the sleeve rollers. Since the black developer brush angle is more horizontal than that of the other brushes, it is rather difficult to carry the black developer back to the development section.
To ensure that the black developer returns, the reverse rotation speed of the black sleeve roller is 1/4 of the reverse rotation speed of the color sleeve rollers.

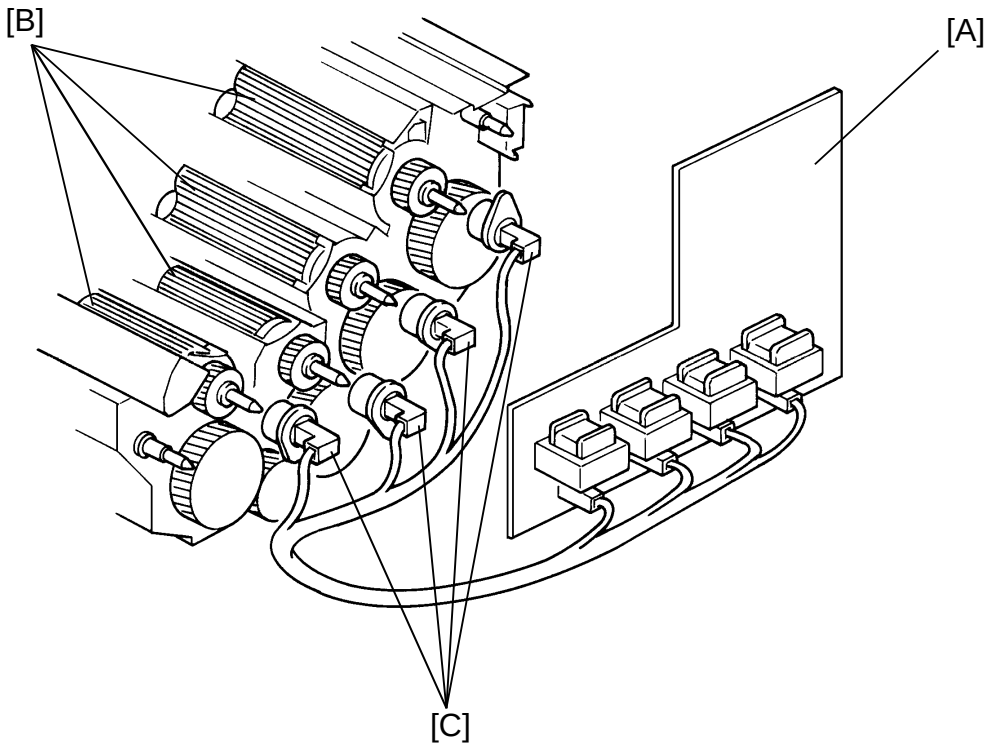
The rotation speeds of sleeve rollers are as follows:

While developing the image (all colors) : 172 rpm

While returning black developer: 43 rpm

While returning color developer: 172 rpm

6.4 DEVELOPMENT BIAS

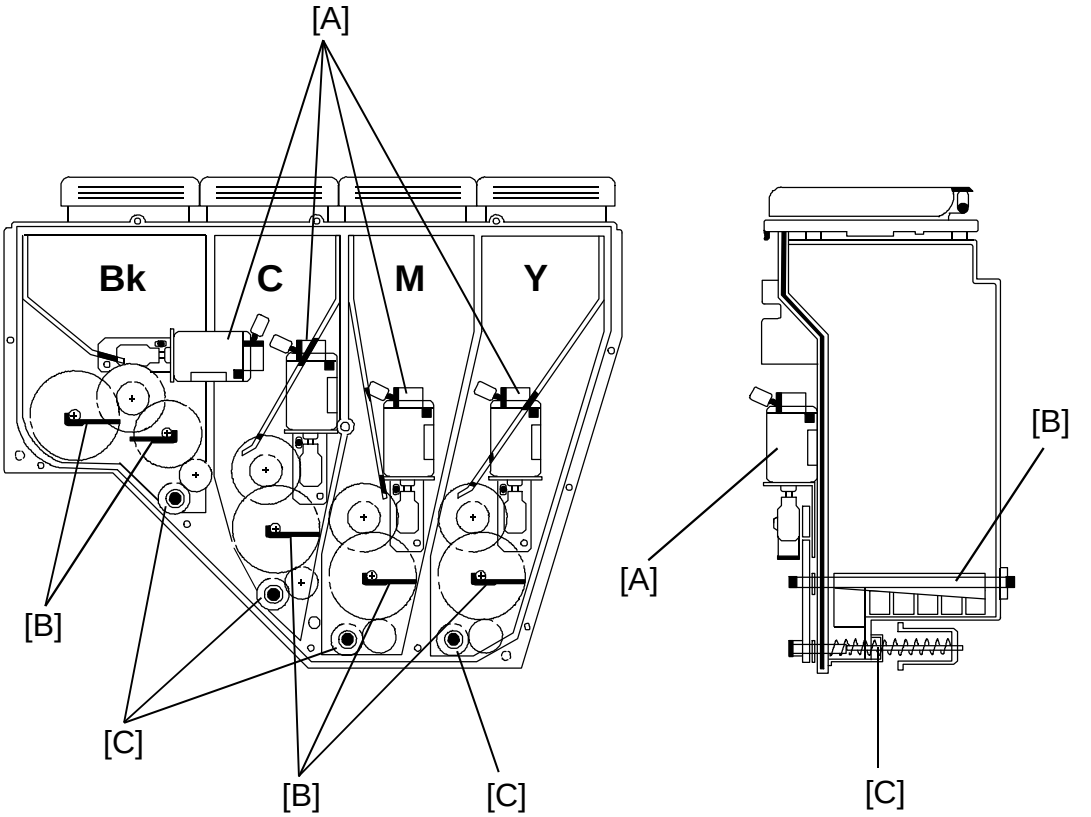


The high voltage supply board-B [A] applies the development bias to each sleeve roller [B] through the receptacles [C] and the development roller shafts. The development bias prevents toner from being attracted to non-image areas on the OPC drum where there is a residual voltage.

Bias voltage is decided during the process control self check. Concerning development bias control, refer to the process control section.

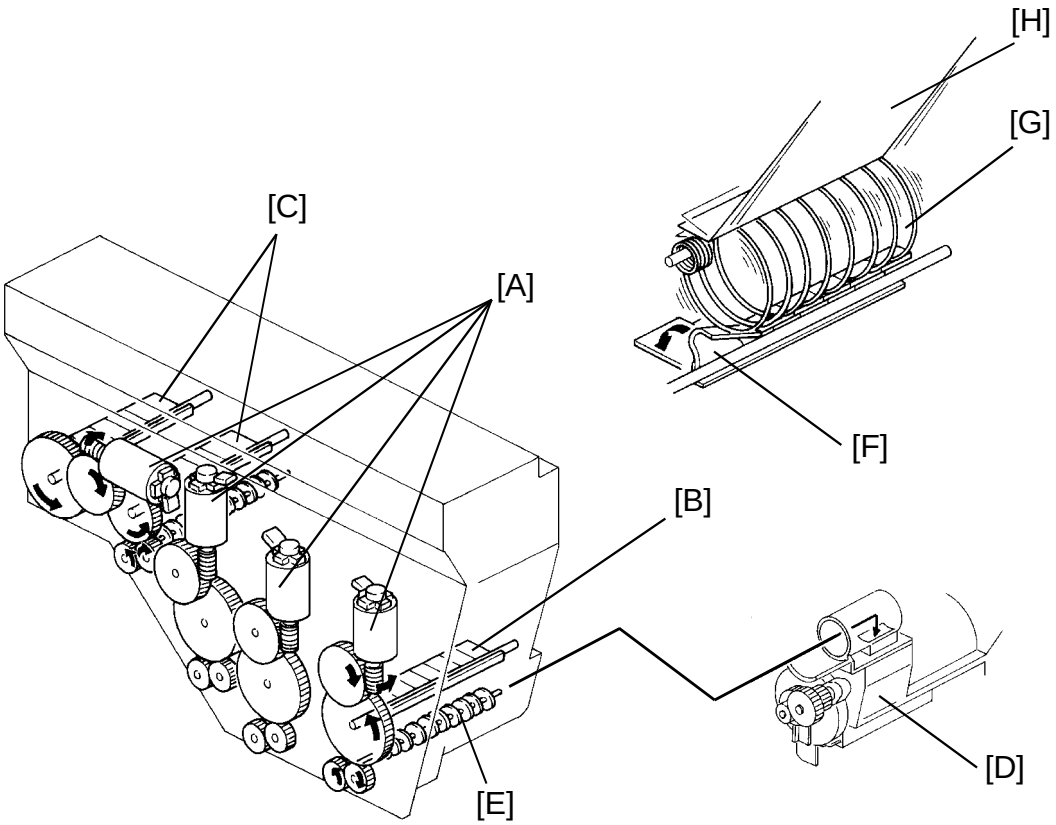
7. TONER TANK

7.1 OVERVIEW



Each color (Bk, C, M and Y) has its own toner tank. The capacity of each tank is at most 1500 cc (Bk), 1350 cc (C), 1400 cc (M, Y). This is about 1.5 times the toner in quantity in new bottles. When the machine CPU sends the toner supply motor [A] on signal based on the toner density sensor output (in each color development section), the toner supply motor of each color toner tank turns on. The toner end condition is also decided based on the toner density sensor output. (For details of toner supply control, refer to the process control section) The toner is agitated by the agitators [B] then transported to the development unit via the transport coils [C].

7.2 TONER TRANSPORTATION AND AGITATION



The toner supply motors [A] turn on when the main switch is turned on or the machine CPU sends the toner supply signal.

There is an agitator [B] in each C,M and Y toner tank and there are two agitators [C] in the black toner tank because the black toner supply tank is wider than the other color toner tanks.

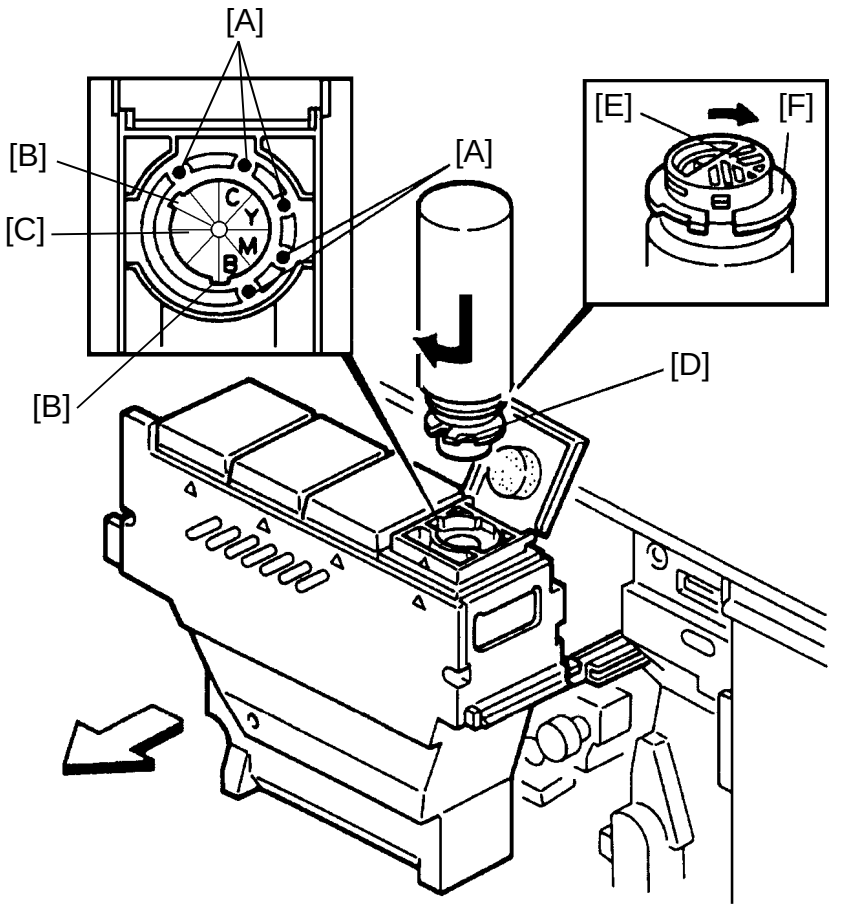
When the toner supply motors turns on, the agitators start rotating. The rotation of the toner supply motor is also transmitted to the transport coil gear through the agitator gears. The toner is transported to the development unit [D] by the transport coil [E].

In order to prevent the toner agitators from being deformed, the toner supply motor rotates in both directions when the main switch is turned on. During this operation, the toner is not supplied. During the copy cycle, the toner supply motor only rotates forward (black arrow).

The projection [F] on the agitator hits the agitation spring [G] and vibrates it. This vibration supports the toner agitation.

Also, this vibration is transmitted to the contacting vibration plate [H]. The vibration plate prevents the toner from clogging in the upper part of the toner hopper.

7.3 TONER BOTTLE



At the top of the toner tank, there is a toner bottle guide which has a positioning pin [A], a notch cut-in [B], and an entrance seal [C].

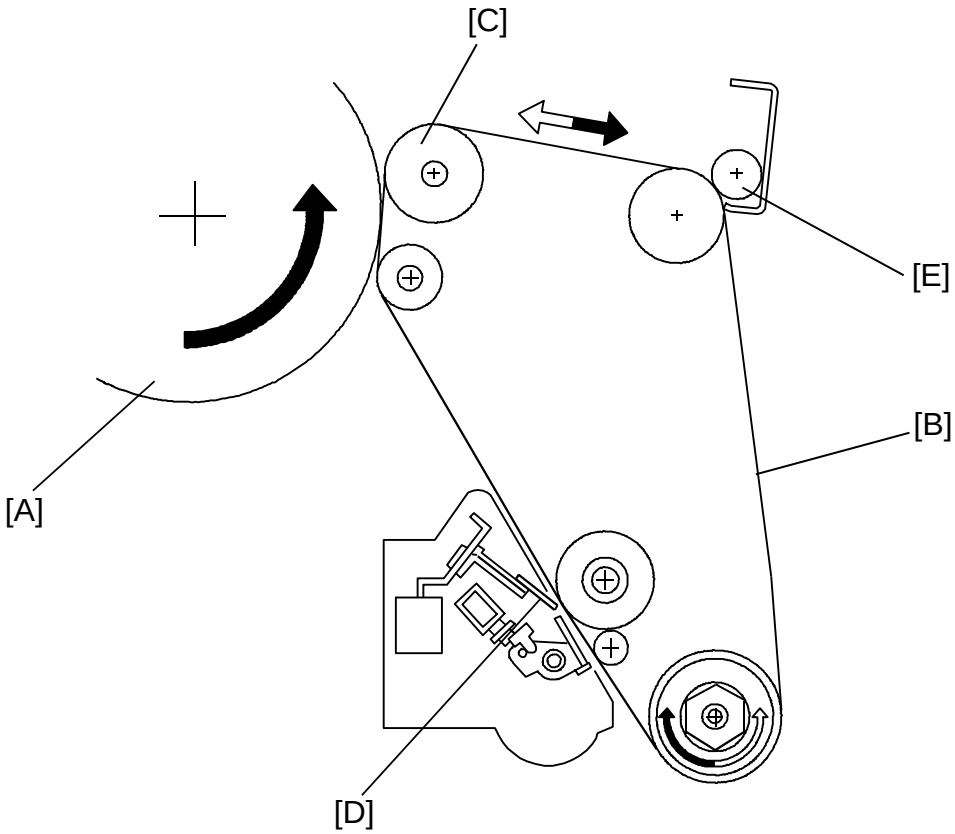
A position for both the positioning pin and the notch cut-in matches each color to prevent a color bottle from being installed on the wrong tank. When the correct color toner bottle is set to the toner bottle guide, with the tab [D] aligned with the notch, the positioning pin fits into the notch cut-in of the toner bottle. By rotating the bottle 90° clockwise, the inner shutter [E] of the toner bottle is opened as the positioning pin holds the outer shutter [F]. Then the toner inside the bottle is supplied to the tank.

The entrance seal prevents toner from scattering when the toner bottle is being removed. This is necessary because the toner is very fine.

CAUTION: Even though the toner tank capacity exceeds the amount in one bottle, never add more than one bottle, and always wait until the Add toner indicator lights.

8. TRANSFER BELT UNIT

8.1 OVERVIEW



Each single color image developed on the OPC drum [A] is transferred separately on the transfer belt [B]. After each single color image has been transferred to the transfer belt, the full color image is then transferred to the copy paper by the transfer roller. (Refer to the transfer roller section.)

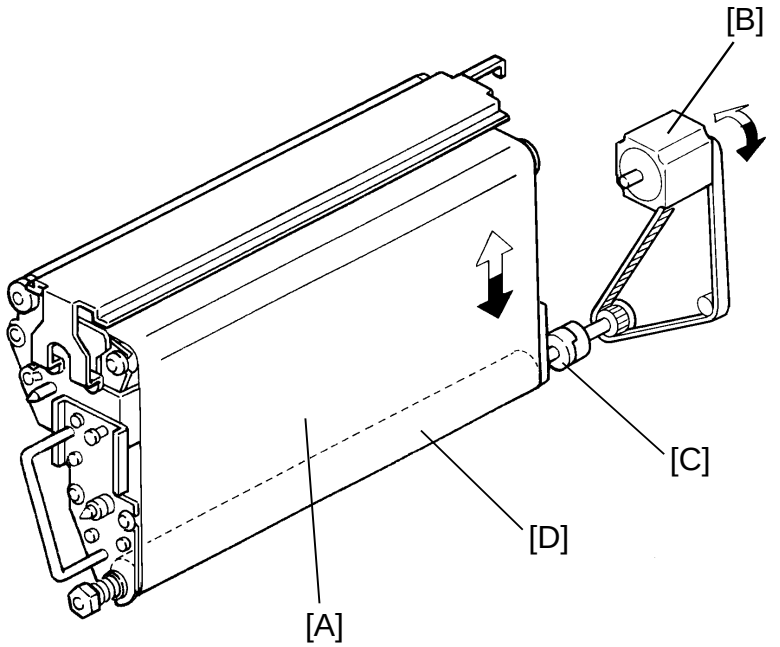
A single color image (Bk, C, M, Y) is transferred in one transfer cycle, so at most four transfer cycles are performed during the full color copy process. They are performed in order: Bk, C, M, Y.

The belt bias roller [C] applies positive bias voltage from the rear side of the transfer belt and attracts the negatively charged toner from the OPC drum onto the transfer belt.

After the copy image is transferred to the copy paper, the remaining toner on the transfer belt is cleaned by the transfer belt cleaning blade [D].

The lubricant brush [E] applies a small amount of lubricant on the surface of the transfer belt to help the cleaning blade remove toner from the transfer belt.

8.2 TRANSFER BELT DRIVE MECHANISM

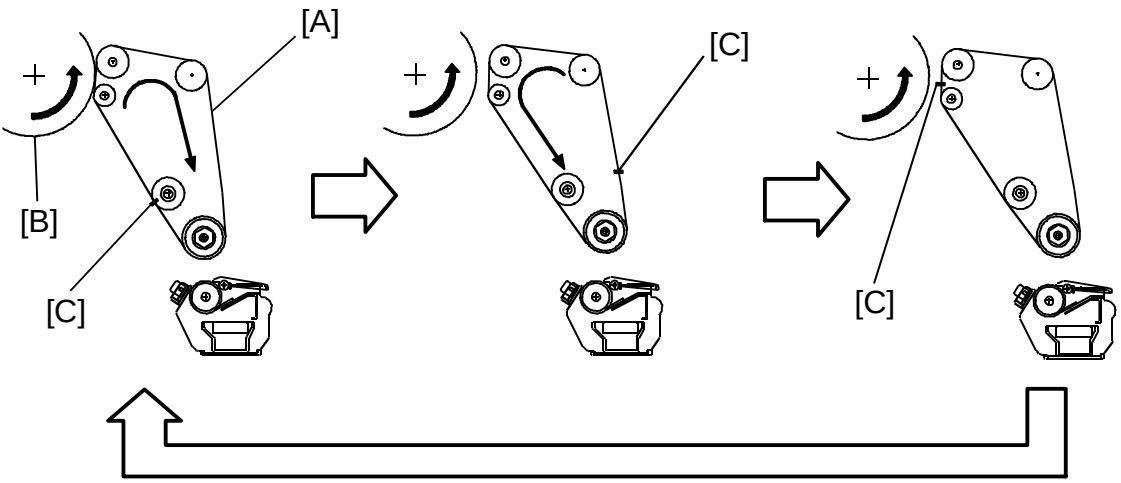


The transfer belt [A] is driven by the transfer belt motor (stepping motor) [B] via a timing belt, coupling gears [C], and drive roller [D]. It rotates both forward (black arrow) and in reverse (white arrow). There are three drive speeds. Normally the transfer belt drive speed is 180 mm/sec. When the transfer belt is driven in reverse for the switch back operation (refer to the next page), the belt drive speed is 1135 mm/sec.

During the image transfer from the transfer belt to the paper, in OHP/thick paper mode, the belt drive speed is 90mm/sec.

8.3 TRANSFER BELT DRIVE CONTROL

8.3.1 Switch Back Operation



To achieve accurate four single color (Bk, C,M,Y) image registration, after one color image transfer is completed, the transfer belt [A] is separated from the OPC drum [B] and the transfer belt rotates in reverse exactly the same amount as the transfer belt rotated for the single color image transfer just completed. ([C] corresponds to the leading edge of the transferred image)

The returned transfer belt waits there until the leading edge of the next color image on the OPC drum arrive. Then the transfer belt contacts the OPC drum and starts to rotate forward for the next color image transfer.

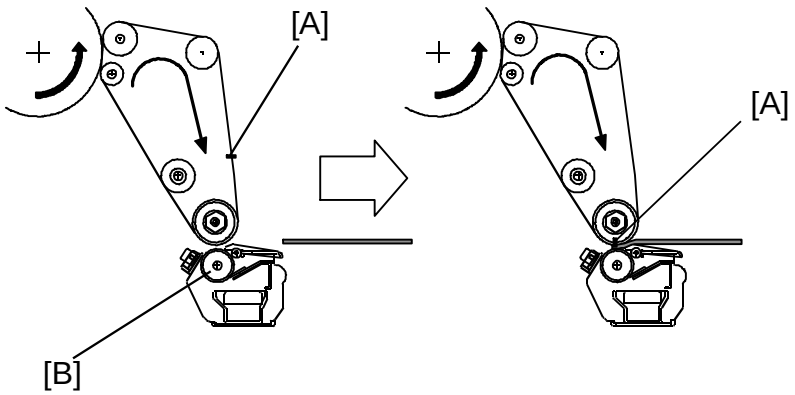
There are only two transfer belt rotation amounts.

If the image size is letter (sideways) or shorter, the transfer belt rotates the same amount as it would rotate for letter. If the image size is longer than letter, the transfer belt rotates the same amount as it would rotate for double letter.

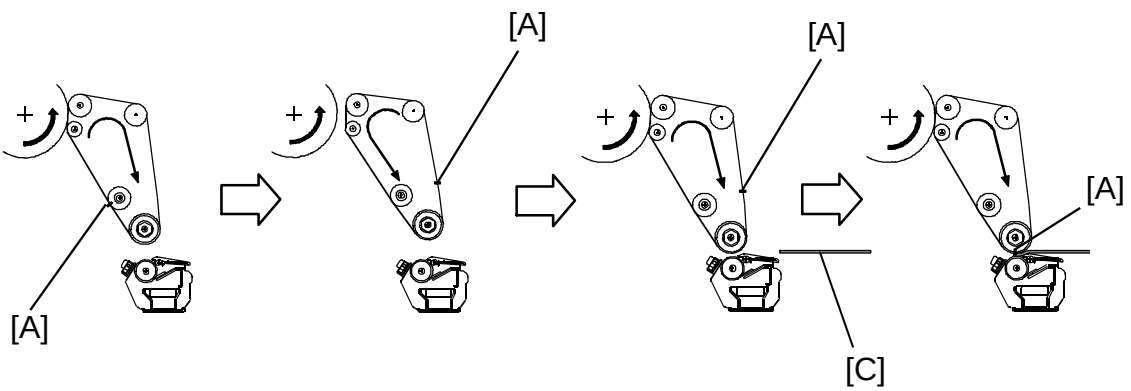
NOTE: A4 sideways shorter than letter sideways.

This switch back operation is done for all copy modes except 1C (single color) mode.

[Fig. 1]: If the image is letter (sideways) or shorter



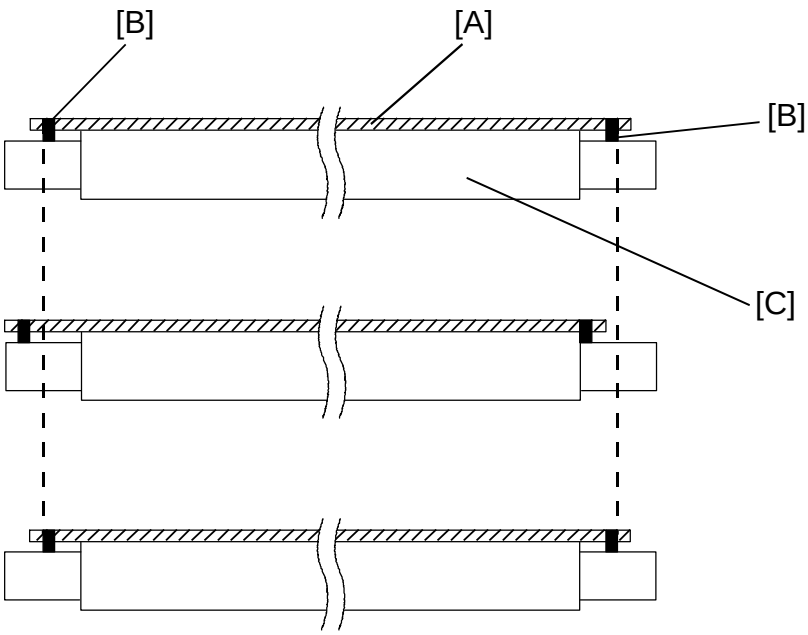
[Fig. 2]: If the image is longer than letter (sideways)



If the image is letter (sideways) or shorter, the leading edge of the image [A] on the transfer belt just after completing the entire transfer process (Bk, C, M, Y) is prior to the transfer roller [B]. In this case, the transfer belt rotates forward to bring the leading edge of the image above the transfer roller [Fig.1].
If the image is longer than letter (sideways), the leading edge of the image on the transfer belt just after completing the transfer process will have already passed the transfer roller. In this case, the transfer belt rotates in reverse to bring the leading edge of the image above the transfer roller. Then, forward rotation starts to transfer the image onto the paper [C]. [Fig.2]

NOTE: A4 (sideways) is shorter than letter sideways.

8.3.2 Idling Rotation



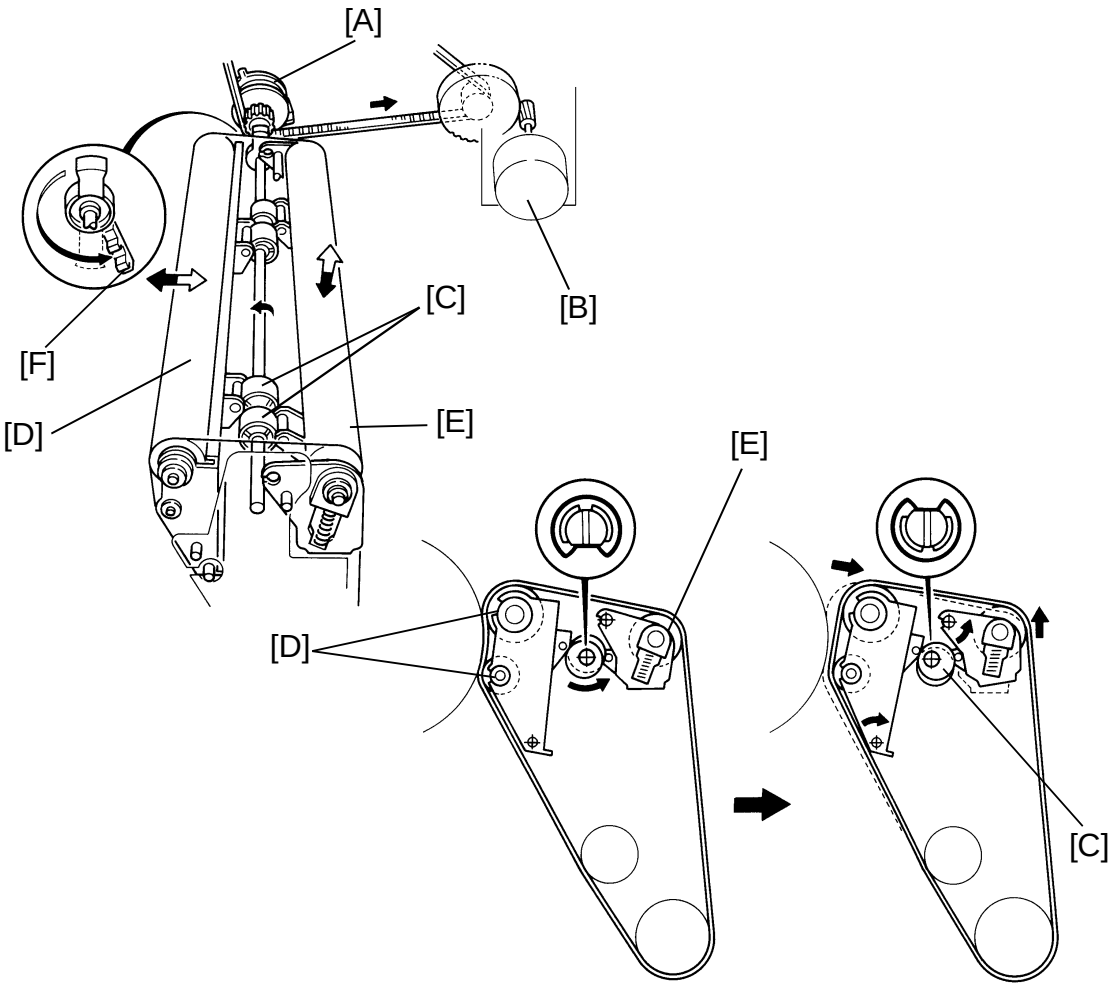
When 1C copies are continuously made, the transfer belt [A] tends to shift to the front or rear because there is no reverse rotation during a continuous 1C copy job.

The belt stopper [B] prevents the transfer belt from being shifted too much. When the belt shifts, the belt stopper touches the edge of the transfer belt drive roller [C] so that it does not shift anymore.

If a full color copy is made under this condition, the transfer belt position returns to the center position during the reverse rotation between the transfer processes. This results in a side-to-side mis-alignment of the color images.

To prevent this in 2C, 3C, 4C modes, before starting the copy process, the transfer belt rotates three times in reverse to position the transfer belt to the center position.

8.4 TRANSFER BELT RELEASE MECHANISM



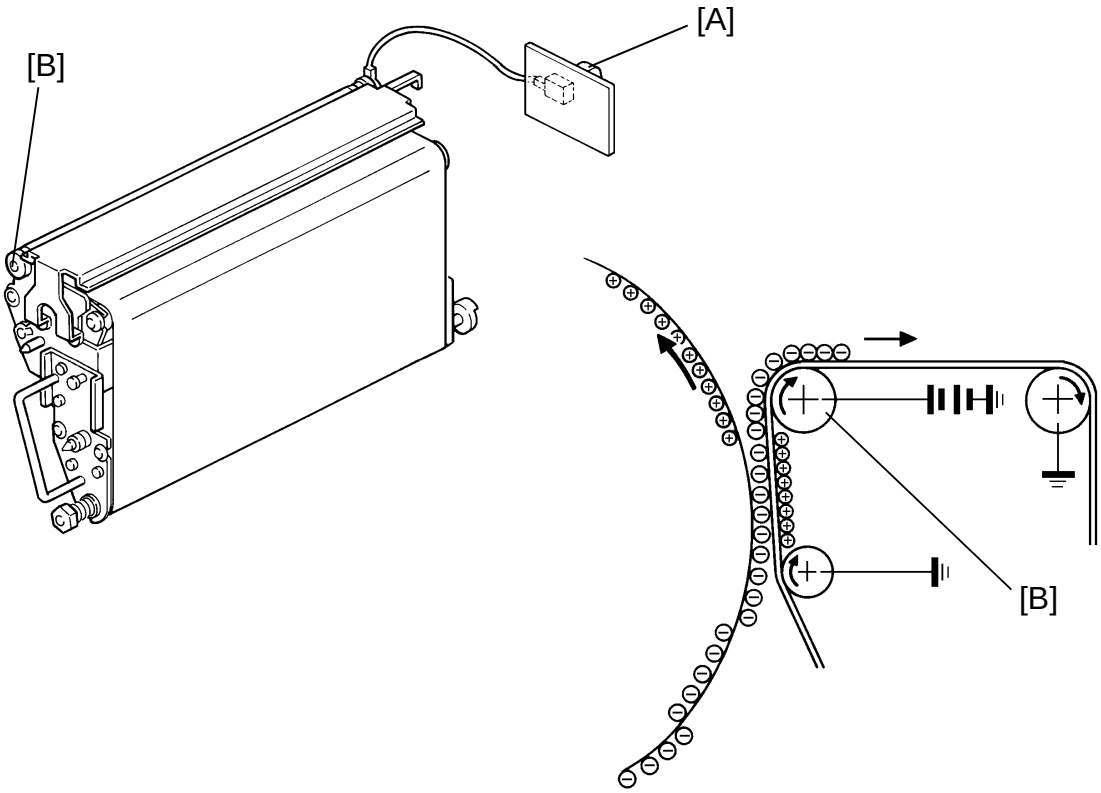
The transfer belt is released from the OPC drum surface when the transfer belt is rotating in reverse. This release and touch operation is controlled by the transfer belt position clutch [A].

When the transfer belt position clutch turns on, the drive from the cleaning motor [B] via the timing belt is transmitted to the cam shaft and the release cam [C] rotates 180 degrees. In this case, the rollers [D] are moved 3mm away from the OPC drum. The transfer belt tension roller [E] is moved outside to keep applying the constant belt tension.

When the transfer belt position clutch turns on again, the release cam rotates another 180 degrees. In this case the bias roller is pressed against the OPC drum (the nip band is approximately 10mm) and the transfer belt tension roller is also pushed inside.

The transfer belt position sensor [F] is actuated when the transfer belt moves away from the drum.

8.5 TRANSFER BELT BIAS



The high voltage supply board - T1/PCC/BR [A] – applies a positive bias voltage to the transfer belt through the belt bias roller [B]. This bias voltage attracts negatively charged toner from the OPC drum onto the transfer belt.

During the second and subsequent image transfer cycles, a positive voltage higher than that used in the previous cycle must be applied to the transfer belt to attract the next color toner from the drum to the transfer belt.

The transfer voltage of each mode is as follows (next page):

<1C (C, M, Y single color) mode>

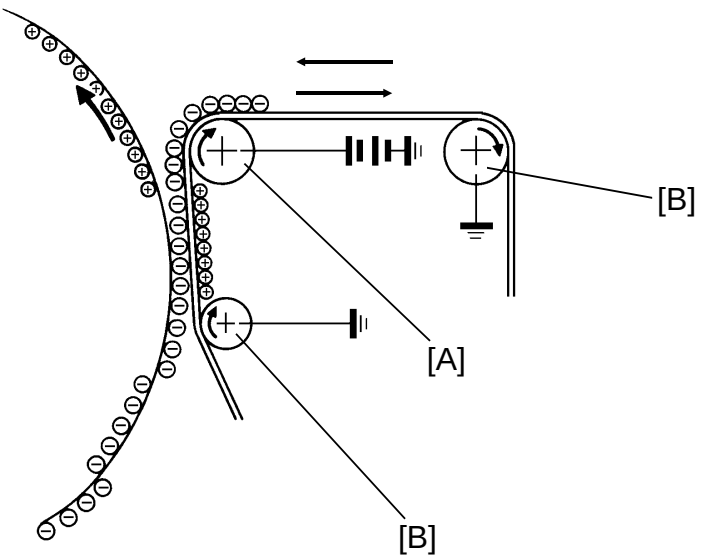
A humidity sensor is used to compensate the transfer belt bias voltage, (as mentioned in the table below) to maintain constant image quality against changes in the humidity of the surrounding area.
The transfer voltage compensation also depends on paper mode.

		Humidity		
	Paper mode	Low	Middle	High
		Less than 4.3 g/m^3	4.3 ~ 11.3 g/m^3	More than 11.3 g/m^3
Bias voltage	Normal	2000 V	1600 V	1200 V
	Thick	2000 V	2000 V	1200 V
	OHP	2000 V	1200 V	1200 V

- When the humidity is low, the transfer bias is high.

This compensation is necessary because toner will not have sufficient charge to transfer to paper after only one cycle.

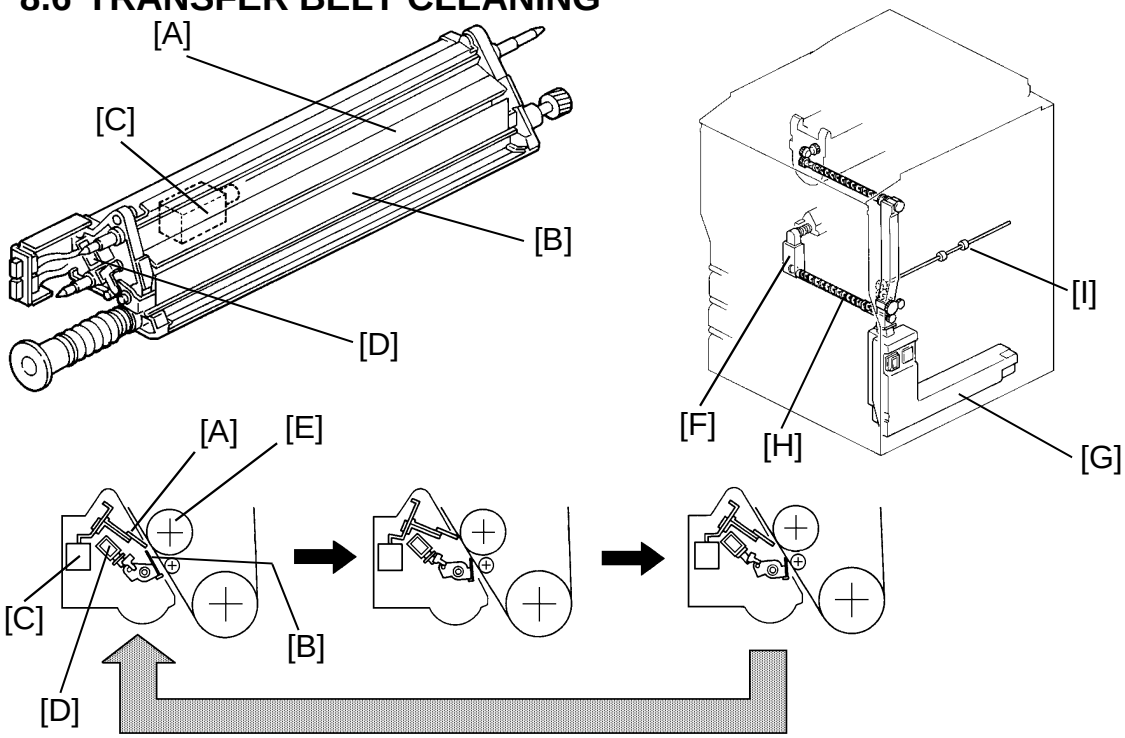
<2C ~ 4C modes>



During several transfer cycles, the transfer belt continues to be charged by the bias roller [A] and discharged by rollers [B]. This charges the toner properly and it does not require compensation as for 1C mode.
The bias voltage for each color cycle is as follows regardless the total cycle number.

Copy cycle	1st	2nd	3rd	4th
Bias voltage	1200	1300	1400	1500

8.6 TRANSFER BELT CLEANING



After the image on the transfer belt is transferred to the paper, the remaining toner on the transfer belt is removed by the cleaning blade [A]. The counter blade system is used, like the OPC cleaning section.

The entrance seal [B] prevents the removed toner from falling on the transfer roller unit.

The cleaning blade and the entrance seal are away from the transfer belt during the transfer process. The cleaning blade solenoid [C] and entrance seal solenoid [D] control the touch and release actions as shown. For these two solenoids, the position of the plunger depends on the direction of the current flowing through. When de-energized, the plunger stays where it is and does not return to the previous position. When the plunger of each solenoid is out, the cleaning blade and entrance seal contact the transfer belt.

The cleaning support roller [E] presses the transfer belt from the inside against the cleaning blade to ensure the transfer belt is cleaned properly.

The removed toner is transported from the cleaning unit to the toner collection duct [F] by the toner collection coil in the unit. This coil is driven by the transport motor via a timing belt.

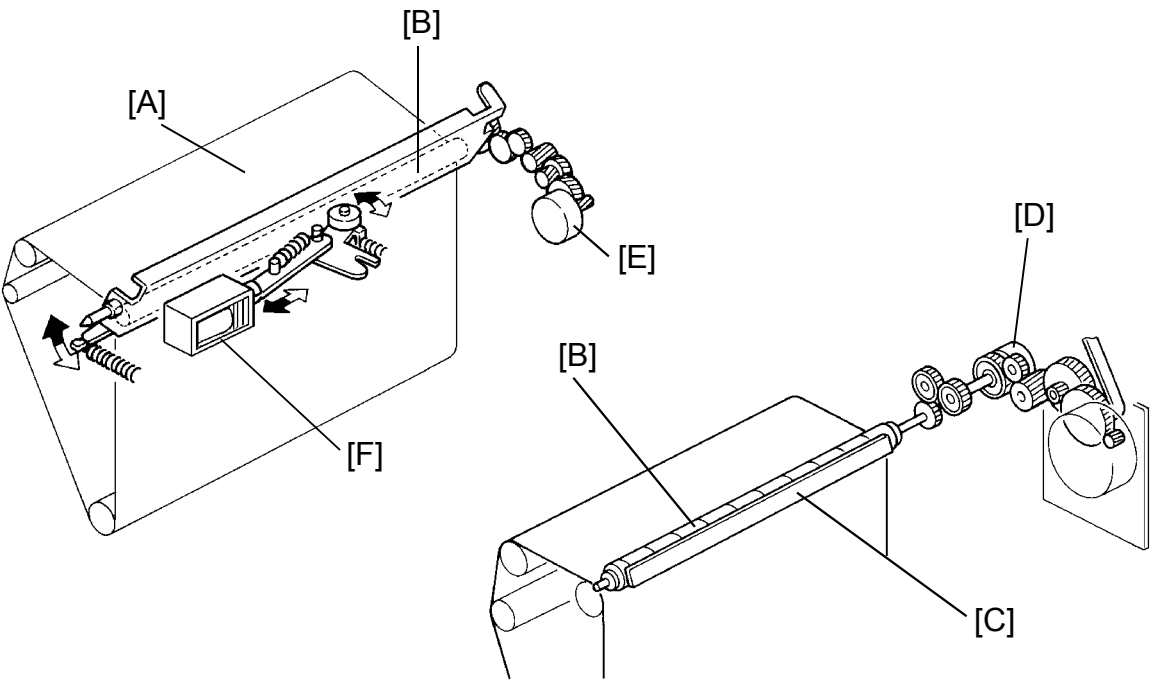
Then the collected toner is transported to the toner collection bottle [G] through the lower toner collection coil [H]. This coil is driven by the drive from the relay roller [I].

8.6.1 Cleaning Mode

The machine performs extra transfer belt cleaning (Cleaning mode) under the following conditions:

- After the last copy job is completed and more than 50 copies have been made since the last cleaning mode.
- In ADF mode, at every 150 copies, even if it is during a continuous copy job. The machine temporarily stops the copy job (about 10 sec) until the cleaning mode is completed. Then it resumes the rest of the copy job automatically.

8.7 LUBRICATION MECHANISM



A small amount of lubricant is regularly applied on the surface of the transfer belt [A] to help the cleaning blade easily remove toner from the transfer belt.

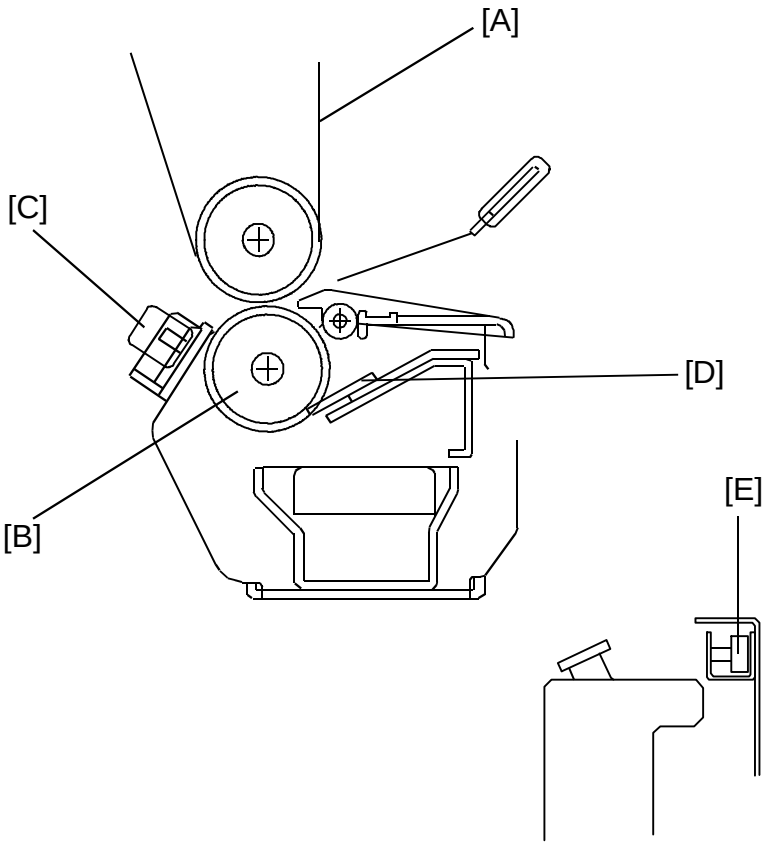
The lubricant brush [B] distributes lubricant from the lubricant bar [C] to the transfer belt.

The lubricant brush clutch [D] transmits the drive from the cleaning motor [E] to the lubricant brush.

Basically, the lubricant brush is away from the transfer belt and contacts the belt under the control of the lubricant brush solenoid [F]. The position of the solenoid's plunger depends on the direction of the current flowing through. When de-energized, the plunger stays in the same position.
When the plunger is in, the lubricant brush touches the belt.

9. TRANSFER ROLLER UNIT

9.1 OVERVIEW



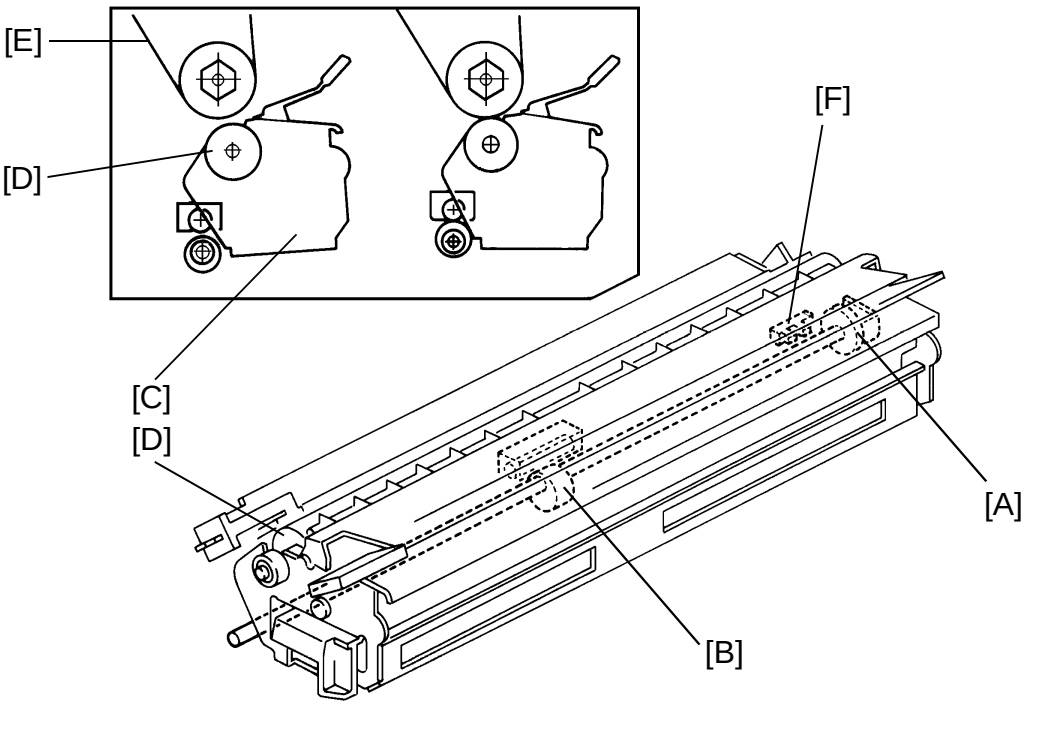
After the entire color (Bk, C,M,Y) image transfer is completed, the composed image on the transfer belt [A] is transferred to the copy paper. The transfer roller [B] applies a positive bias voltage to the rear side of the copy paper to attract the negatively charged toner from the transfer belt.

The discharge plate [C] discharges the remaining electricity on the paper to separate the paper from the transfer belt.

The transfer roller cleaning blade [D] scrapes off the toner left on the transfer roller to prevent the rear side of the paper from being stained by the toner.

A humidity sensor [E] is used to compensate the transfer roller bias and transfer belt bias to maintain a constant image quality against changes in the humidity of surrounding areas.

9.2 ROLLER TOUCH AND RELEASE MECHANISM

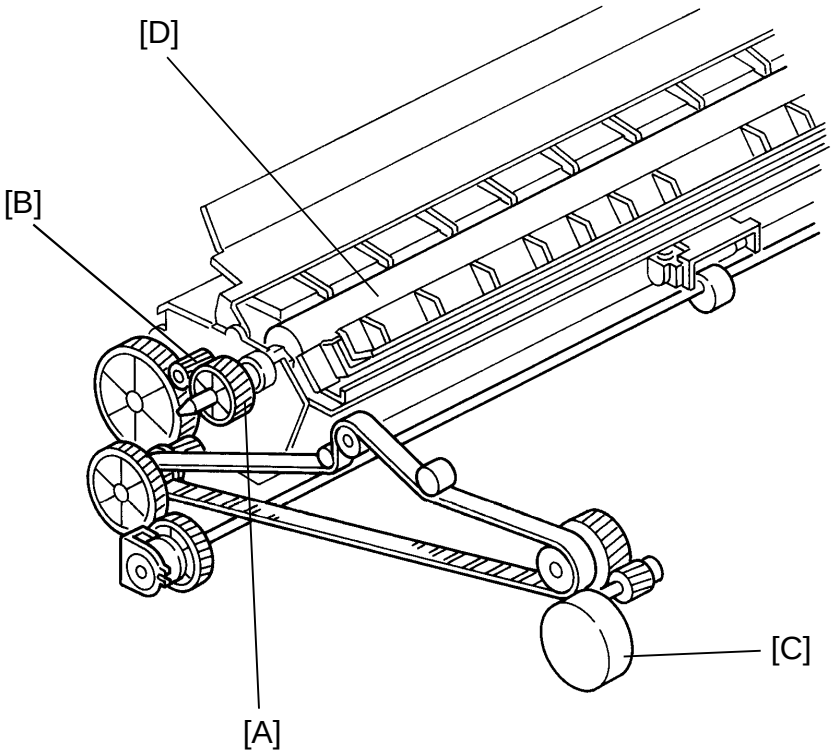


After the entire color (Bk, C,M,Y) image transfer is completed and the copy paper arrives at the registration rollers, the transfer roller position clutch [A] turns on to rotate the positioning cam [B] 180 degrees. The positioning cam raises the whole transfer roller unit [C] to contact the transfer roller [D] with the transfer belt [E]. In this case, the nip band width between the transfer belt and the transfer roller is approximately 1.2 mm (0.05").

When the transfer roller position clutch turns on again, the positioning cam rotates another 180 degrees. In this case, the transfer roller unit moves away from the transfer belt.

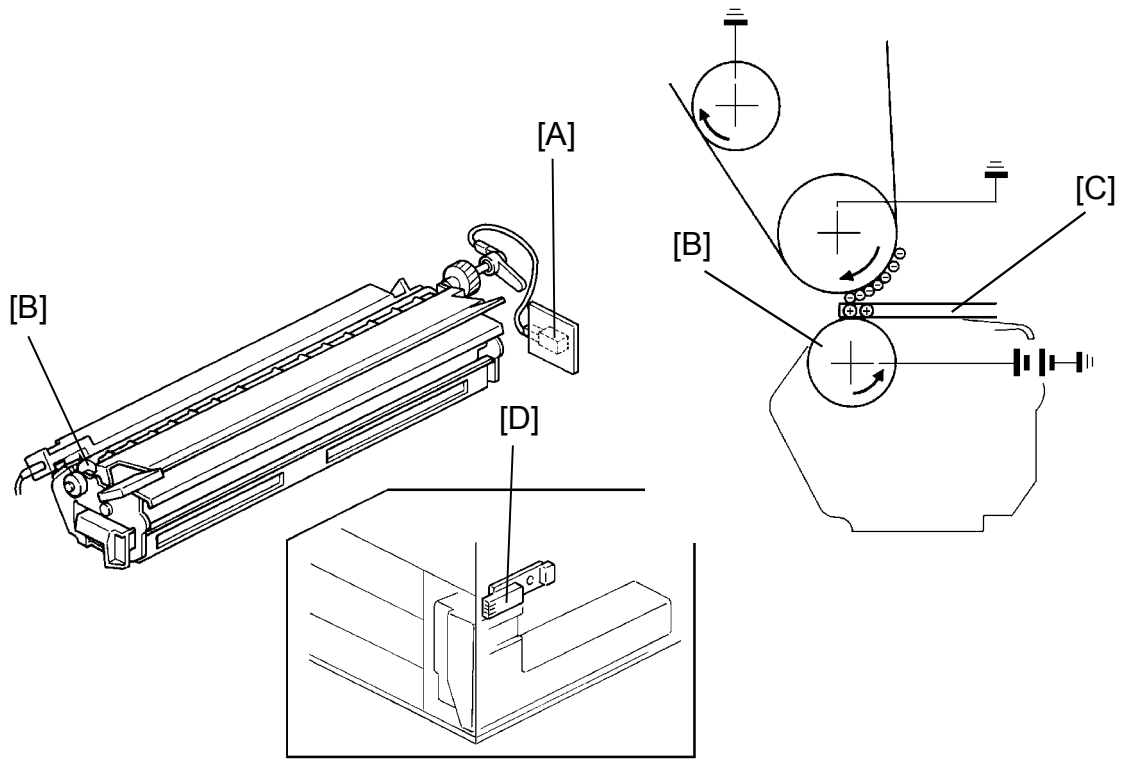
This release and contact operation is monitored by the transfer roller position sensor [F].

9.3 TRANSFER ROLLER DRIVE



When the transfer roller unit is raised, the gear [A] engages the gear [B] and the drive from the transport motor [C] is transmitted to the transfer roller [D].

9.4 TRANSFER ROLLER BIAS



The high voltage supply board - T2 [A] applies positive bias voltage to the transfer roller [B]. The transfer roller applies positive bias voltage to the rear side of the copy paper [C] to attract the negatively charged toner from the transfer belt.

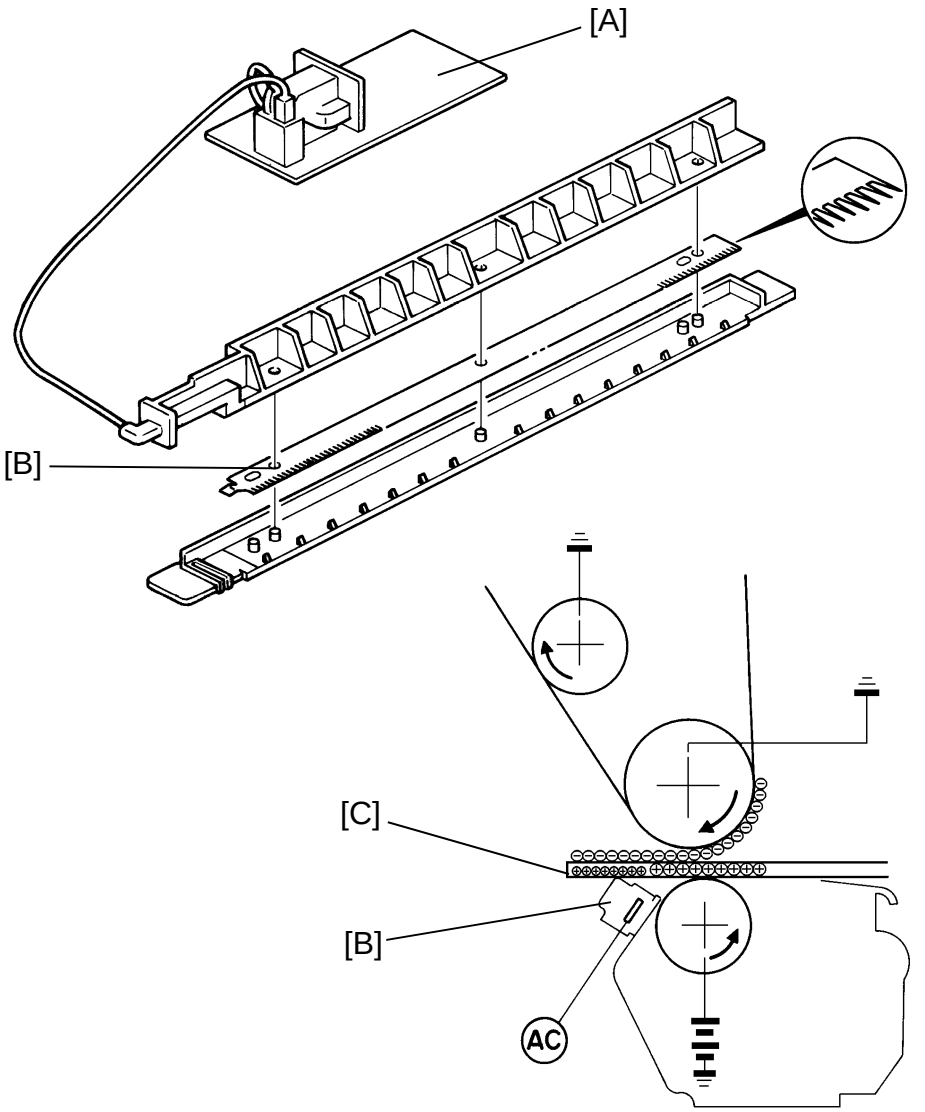
In multiple color copy mode, during the second and subsequent image transfer cycles on the transfer belt, a positive voltage higher than that used in the previous cycle is applied to the transfer belt. According to the charge amount of toner particles on the transfer belt the transfer roller bias voltage differs for different copy modes.

A humidity sensor [D] (see the illustration on the previous page) is used to compensate the transfer roller bias voltage to maintain constant image quality against changs in the humidity of surrounding areas.

			Humidity		
	Paper mode	Cycle	Low ($4.3\ g/m^3$ >)	Middle ($4.3 \sim 11.3\ g/m^3$)	High ($11.3\ g/m^3$ <)
Bias voltage	Normal	1C	1100 V	1000 V	800 V
		2C	1800 V	1600 V	1400 V
		3C	2100 V	1800 V	1450 V
		4C	1700 V	1300 V	1200 V
	Thick	1C	1100 V	1000 V	800 V
		2C	2000 V	1600 V	1400 V
		3C	2000 V	1750 V	1200 V
		4C	1450 V	1300 V	1100 V
	OHP (Length-wise)	1C	1800 V	1400 V	1100 V
		2C	2050 V	2200 V	2200 V
		3C	2650 V	2650 V	2650 V
		4C	2000 V	2150 V	2150 V
	OHP (Side-ways)	1C	1600 V	1500 V	1350 V
		2C	1950 V	2050 V	2100 V
		3C	2650 V	2650 V	2650 V
		4C	1800 V	2050 V	2100 V

- When humidity is low, paper resistance is high.
  Therefore, the bias voltage is high because the potential of the paper side facing the transfer belt is reduced due to the high resistance of paper.
- The transfer bias increases with each cycle. This is simply because the toner quantity on the transfer belt increases.
  However in 4C mode, black toner is used instead of Y M C toner combination (UCR), so that the toner quantity on the transfer belt is lower than in 3C mode. Therefore, the bias voltage in 4C mode is lower than in 3C mode.

9.5 PAPER DISCHARGE

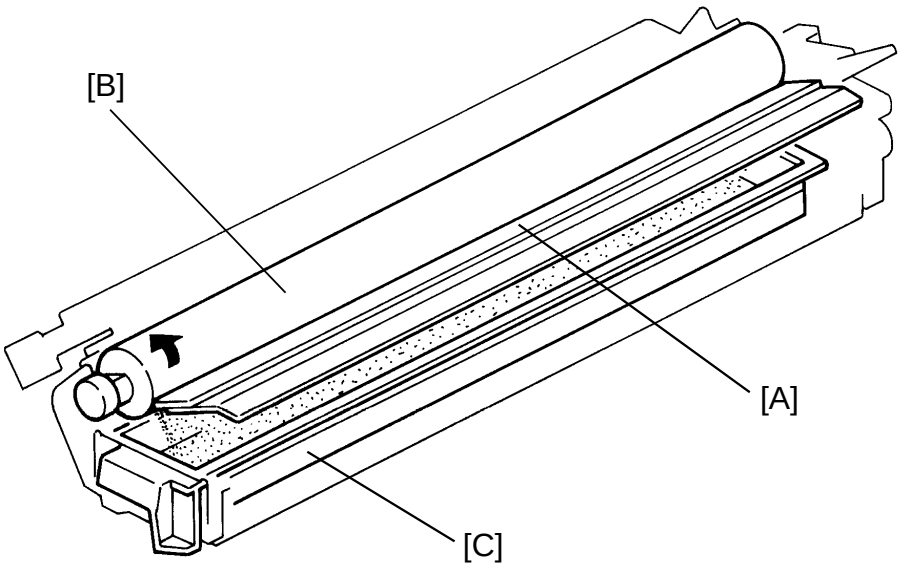


The high voltage supply board - D [A] applies ac 4kV to the discharge plate [B].

The discharge plate discharges the remaining electricity on the paper [C] to separate the paper from the transfer belt.

The high voltage supply board - D does not apply ac 4kV to the discharge plate in OHP mode because the OHP is separated from the transfer belt by its stiffness.

9.6 TRANSFER ROLLER CLEANING



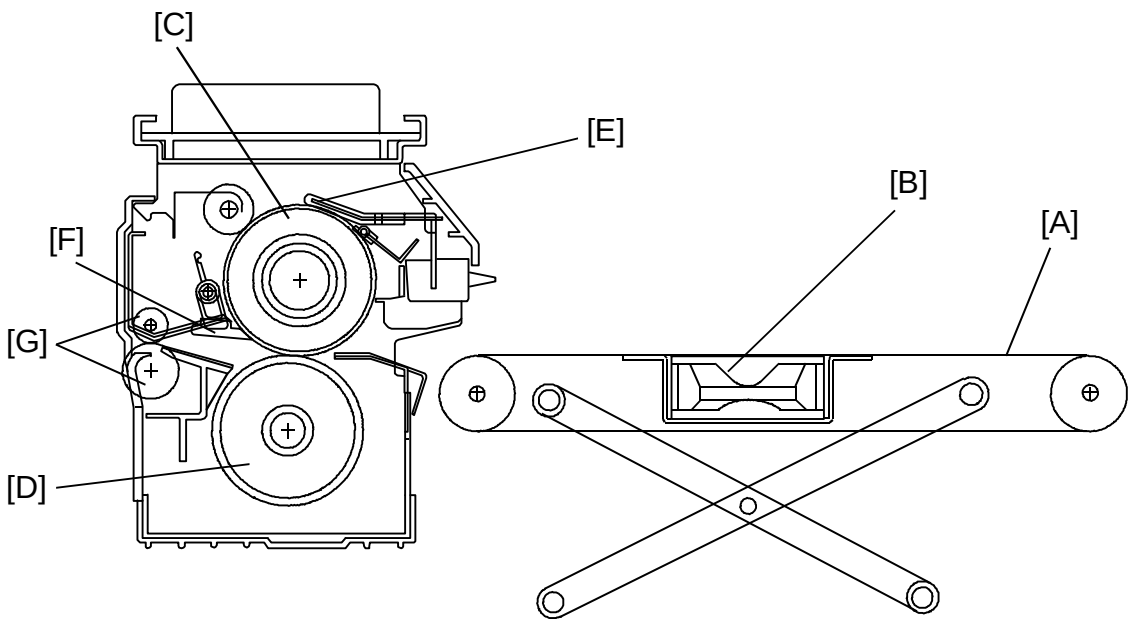
The transfer roller cleaning blade [A] scrapes off the toner adhering on the transfer roller [B] to prevent the back side of the paper from being stained by toner.

The transfer roller cleaning blade continuously cleans the transfer roller. The transfer roller surface is covered with a teflon tube to improve its cleaning ability.

The removed toner is collected in the toner catch pan [C] in the transfer roller unit.

10. PAPER TRANSPORT AND IMAGE FUSING

10.1 OVERVIEW

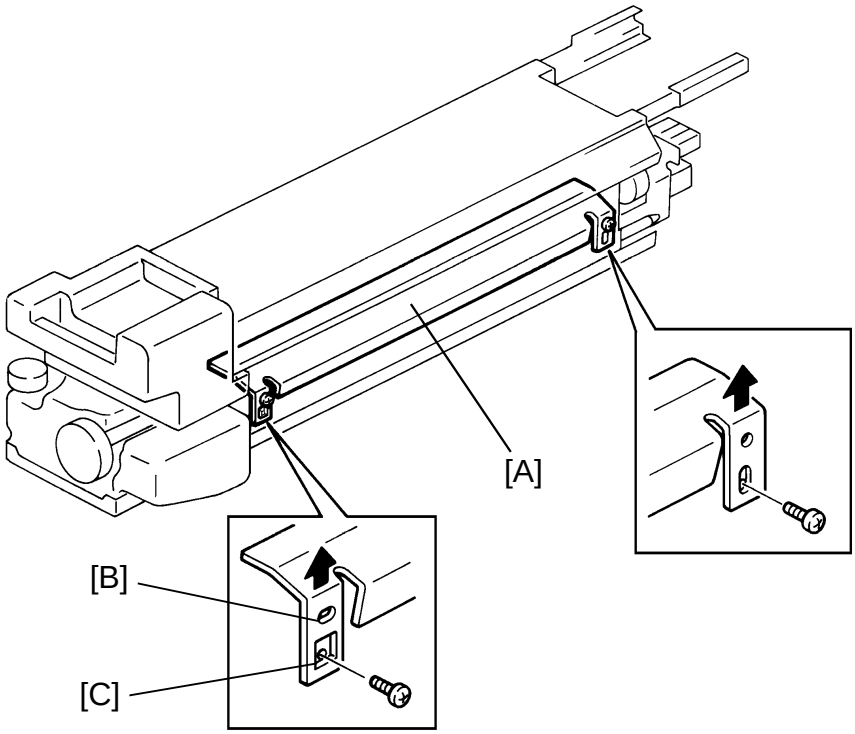


After the image is transferred to the paper, the copy paper is transported by the transport belts [A]. Two vacuum fans [B] hold the paper firmly against the transport belts so that there is enough friction between the paper and the transport belts for smooth transportation of the paper. Then the paper enters the fusing unit and the image is fused to the copy paper by a heat and pressure process through the use of a hot roller [C] and pressure roller [D].

The fusing lamps located inside the hot roller (650W) and the pressure roller (400W) are turned on and off to maintain the operating temperature. The CPU monitors the hot roller and pressure roller surface temperature through thermistors which are in contact with the hot roller's surface and pressure roller's surface. Two thermofuses that cut current at 150 degrees protect the fusing unit from overheating.

An oil supply pad [E] applies silicone oil to the hot roller. The hot roller strippers [F] separate the copy paper from the hot roller and direct it to the exit rollers [G].

10.2 FUSING ENTRANCE GUIDE



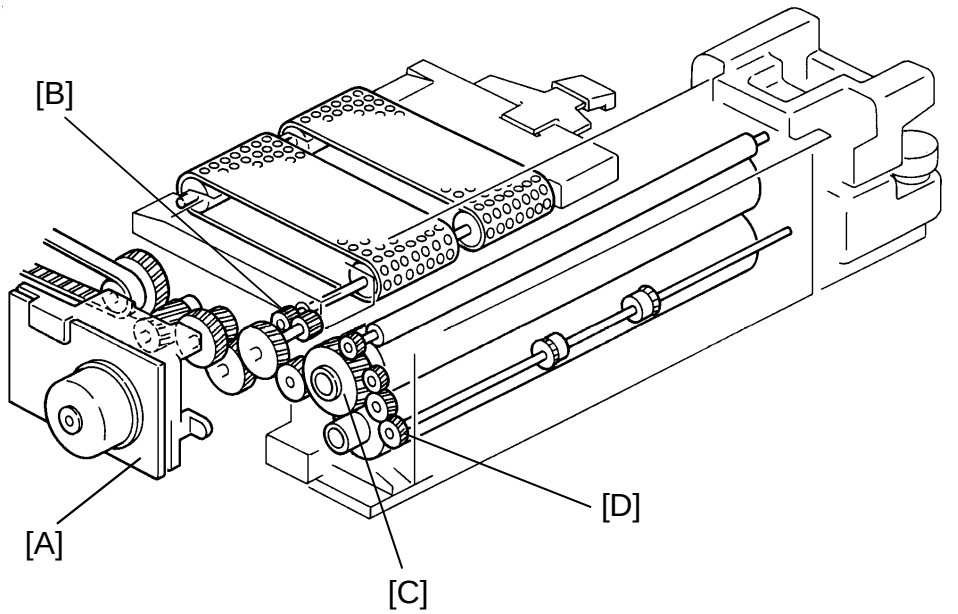
The entrance guide [A] for this machine is adjustable for thick or thin paper.

With thin paper, set the entrance guide in the upper position. This slightly lengthens the paper path which prevents the paper from creasing in the fusing unit. With thick paper, set the entrance guide in the lower position.

This is because thick paper does not bend as easily, and is therefore less prone to creasing. Also, the lower setting allows more direct access to the gap between the hot and pressure rollers. This prevents thick paper from buckling against the hot roller, which can cause blurring at the leading edge of the copy.

The guide plate standard position is the center position (upper hole [B]). The guide plate position can be adjusted when the fixing screws are set to the lower holes [C].

10.3 DRIVE MECHANISM

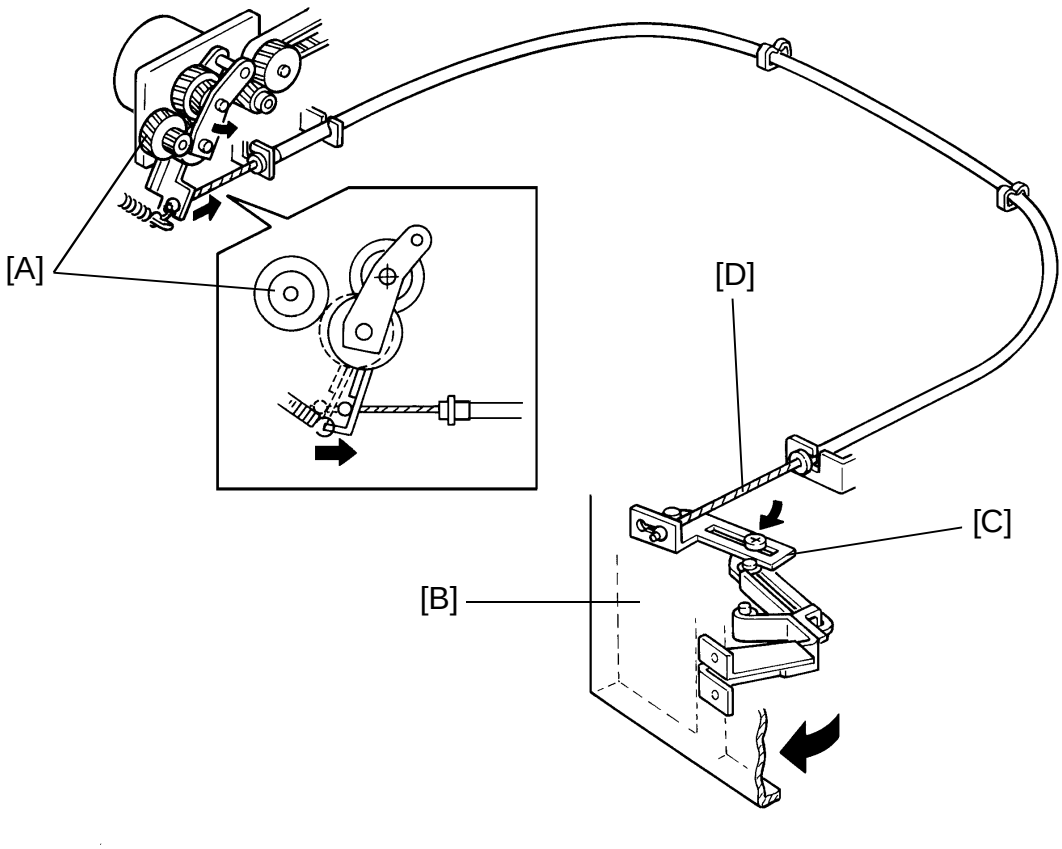


The paper transport, fusing and the paper exit sections are driven by the transport motor [A].

The drive from the transport motor is transmitted to the transport drive gear [B], to the fusing roller drive gear [C], then to the paper exit drive gear [D] via idle gears.

When the OHP mode or thick paper mode is selected, the paper transport speed becomes low (90 mm/sec) to sufficiently fuse toner onto the OHP or thick paper.
This speed is half of the normal one (180 mm/sec).

10.4 FUSING DRIVE RELEASE MECHANISM

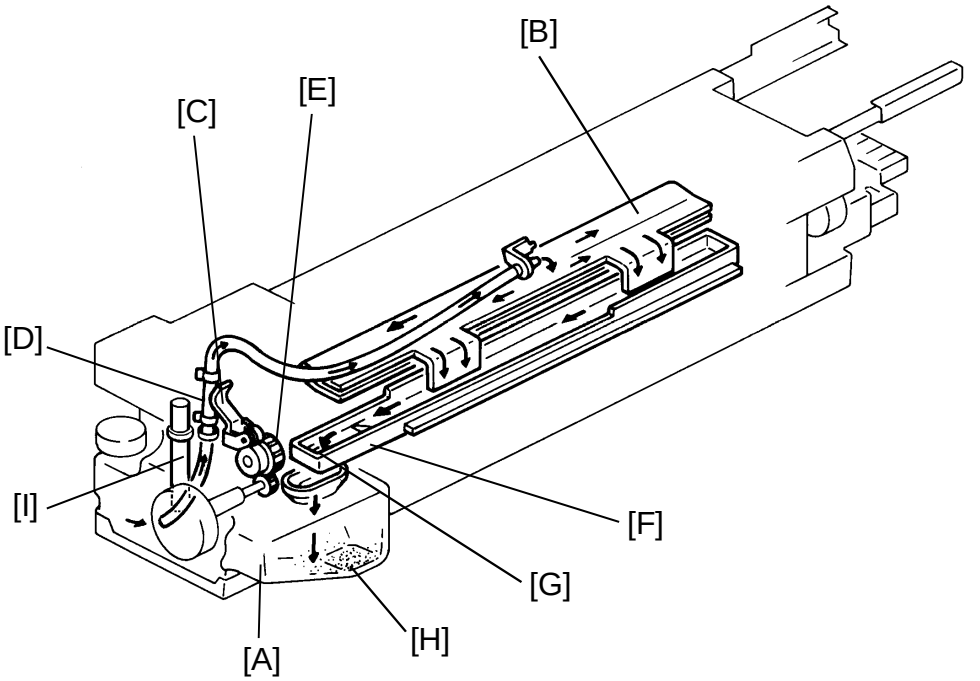


The fusing unit drive release mechanism automatically disengages the fusing unit drive gear [A] when the left front door [B] is opened.

This allows the fusing unit drive gear to rotate freely so that misfed paper can be easily removed.

When the left front door is opened, the actuator plate [C] pulls the release wire [D] and the fusing unit drive gear is disengaged.

10.5 OIL SUPPLY MECHANISM



Silicone oil is applied to the hot roller to help prevent toner and paper from sticking to the hot roller, to reduce paper curl, and to help in roller cleaning.

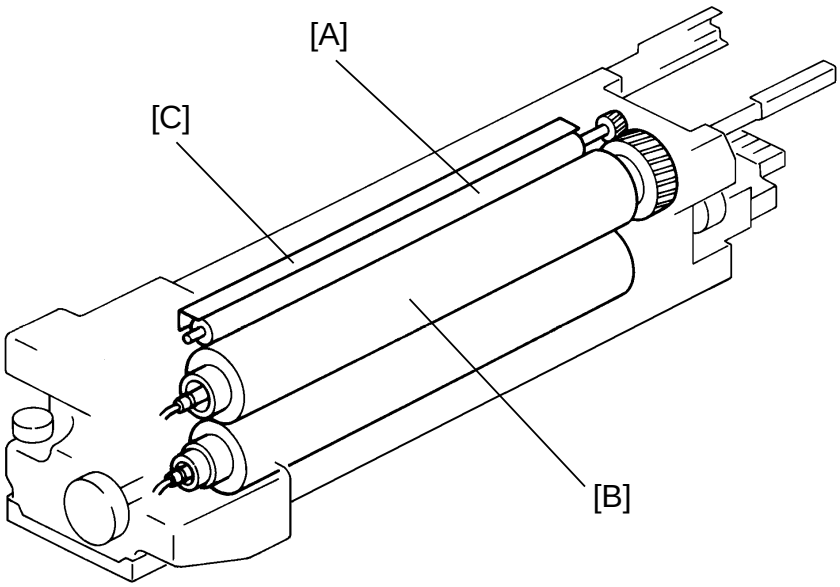
A small pump with a one-way valve moves the oil from the oil tank [A] to the oil supply pad [B]. The oil pump lever [C] alternately presses and releases the rubber sleeve [D] between the valves as the oil cam [E] turns.

The oil supply pad then applies the oil to the hot roller as the roller turns. The oil blade spreads the oil on the hot roller evenly. Excess oil flows down the felt wick to the oil sump [F]. Oil flows out through hole [G] in the bottom of the oil sump and returns to the oil tank.

The oil supply pad distributes oil to the hot roller and removes the remaining toner from the hot roller's surface.

The hollow [H] collects foreign matter such as paper dust in the silicone oil. The oil end sensor [I] detects the end condition. When the oil end condition is detected, copying is immediately disabled and a call service guidance is displayed on the LCD.

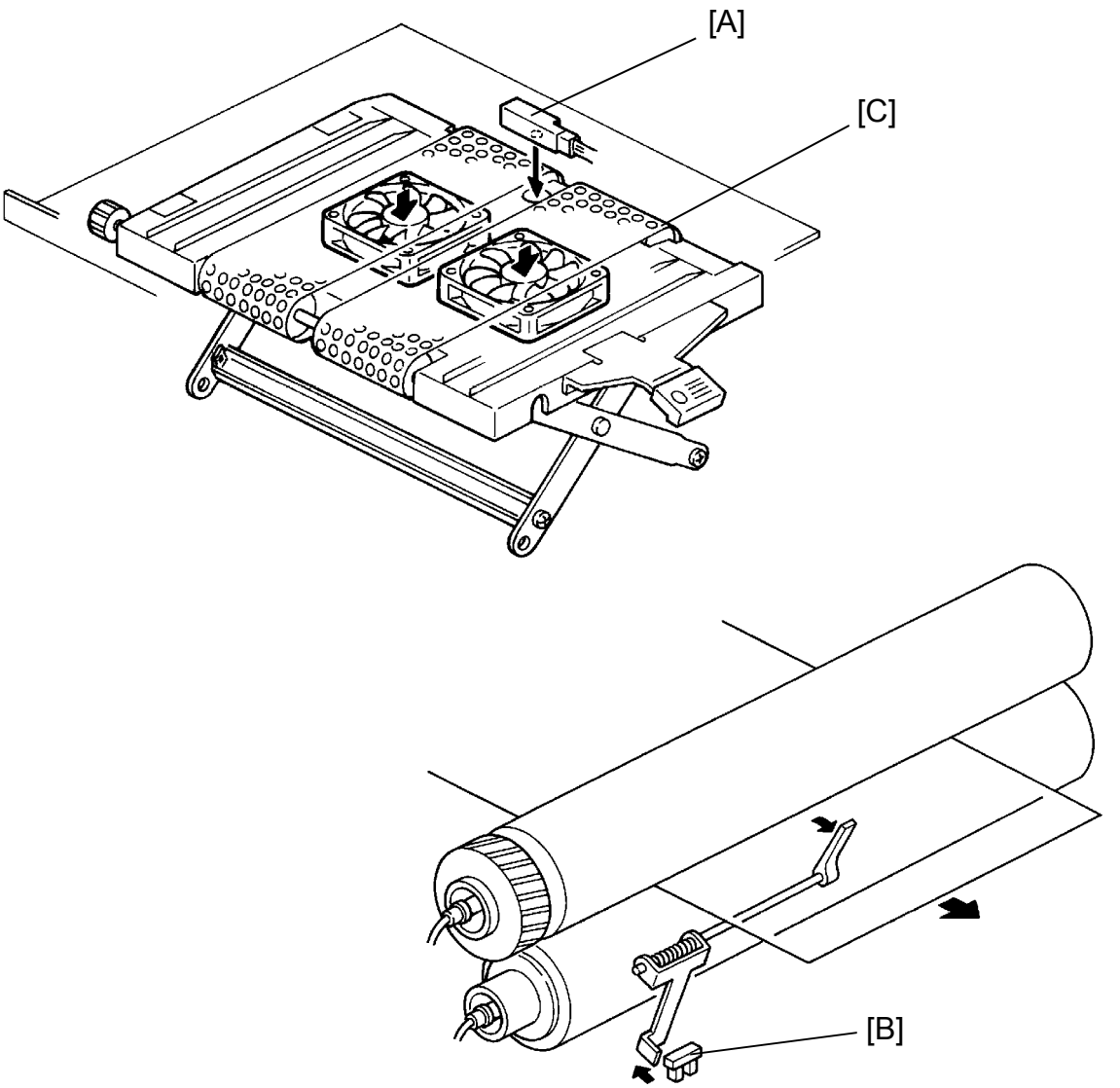
10.6 CLEANING MECHANISM



The cleaning roller [A], which is always in contact with hot roller, collects the toner and paper dust adhering on the surface of the hot roller [B]. This is because the teflon coating on the surface of the cleaning roller is more sticky than the hot roller surface (silicone rubber).

The collected matter is scraped off by a stainless steel blade [C].

10.7 JAM DETECTION



The transport sensor [A] and the exit sensor [B] monitor the paper jam.

The transport sensor is a reflective sensor located above the transport belts [C]. When the machine detects that the paper is not properly separated from transfer belt and not arriving below the transport sensor, the machine stops the operation immediately (ON check only).

The exit sensor (photointerruptor) makes an ON and OFF check to detect the paper jams.

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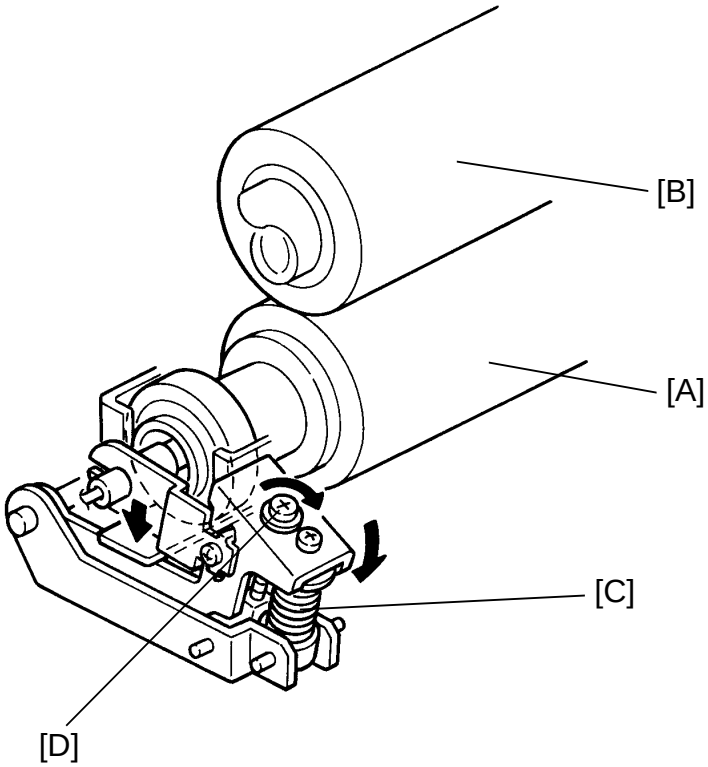
10.8 FUSING PRESSURE MECHANISM



The pressure roller [A] is pressed up against the hot roller [B] by a pressure spring [C].

When the pressure release screw [D] is turned clockwise, the fusing pressure spring is pressed down to release the fusing pressure. The purpose of this screw is not for adjustment but just for pressure release. Normally the pressure release screw is fully loosened. This screw is tightened in the factory to prevent deformation of the fusing rollers during transportation and storage.

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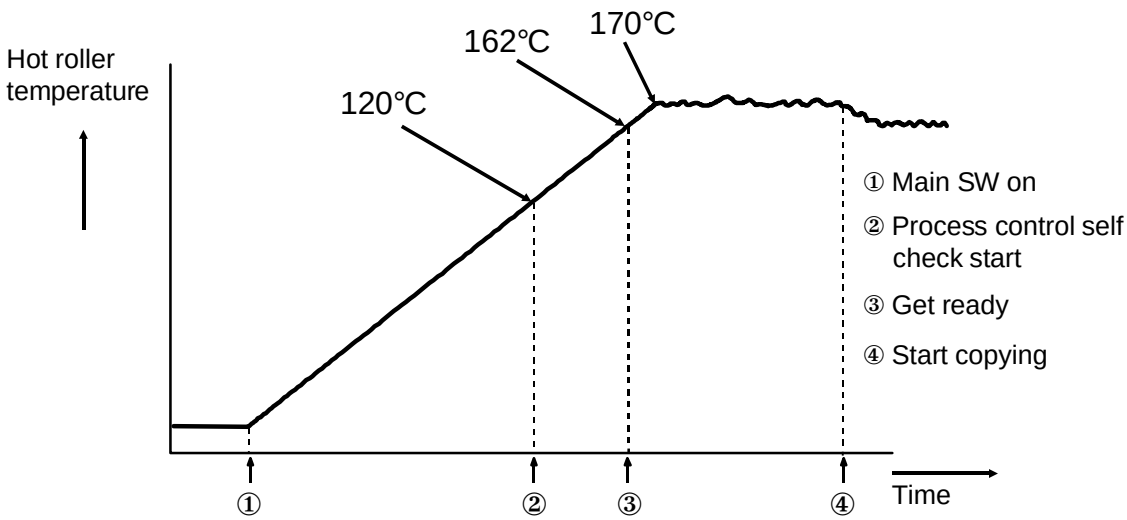
10.9 FUSING TEMPERATURE CONTROL



To control the temperature of the hot roller and the pressure roller, the fusing lamps are turned off and on by the SSR (Solid State Relay).

Because there are fusing lamps in both hot and pressure rollers, there is no fusing idling needed for the machine to get ready when the main switch is turned on.

During stand by, the hot roller temperature is controlled at 170°C and the pressure roller temperature is controlled at 120°C.

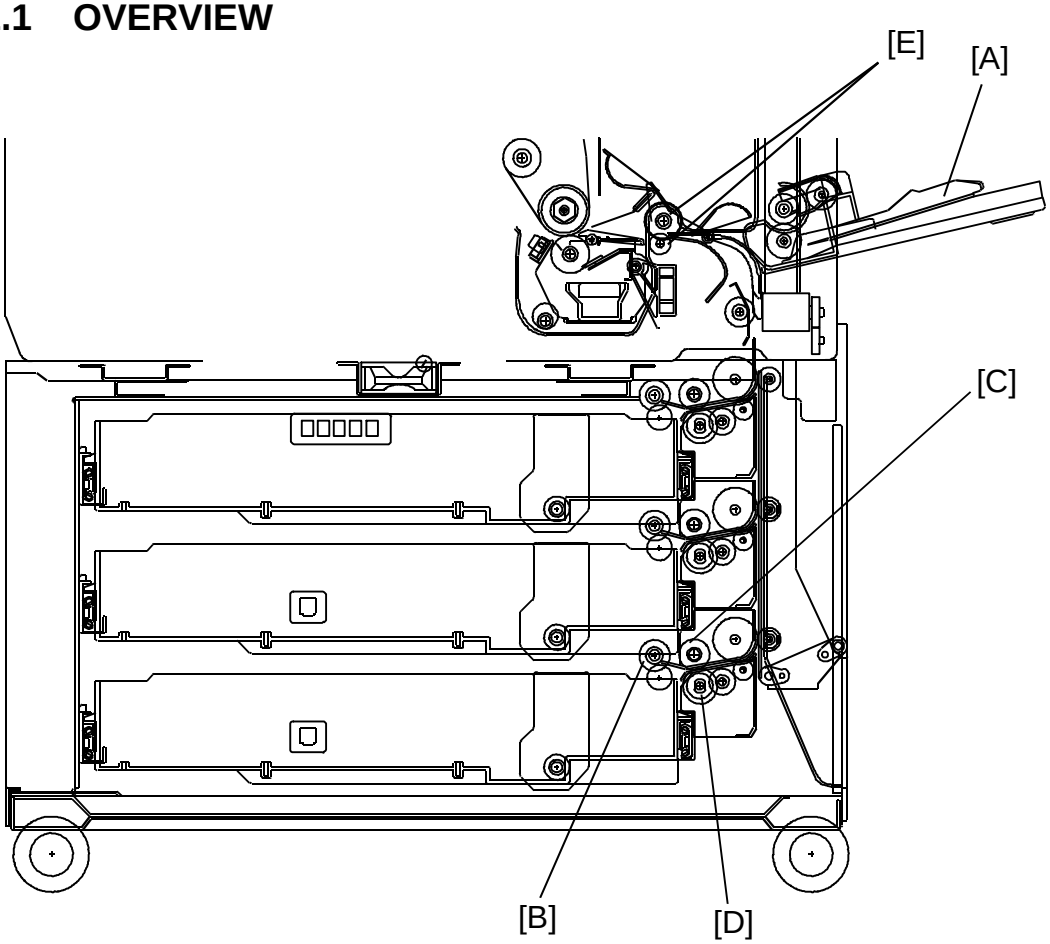
While copying, the fusing temperature is controlled as shown in the table below. These temperatures are lower than the ready temperature.

Condition	Stand-by	During copying			
Modes		Normal		OHP/thick paper	
		1C	2C,3C,4C	1C	2C,3C,4C
Hot roller temp.	170°C	150°C	160°C	160°C	
Pressure roller temp.	120°C	140°C			

Two development exhaust fans are installed just above the fusing unit and a fusing exhaust fan is installed at the rear left side. These fans let the hot air escape to prevent overheating.

11. PAPER FEED

11.1 OVERVIEW

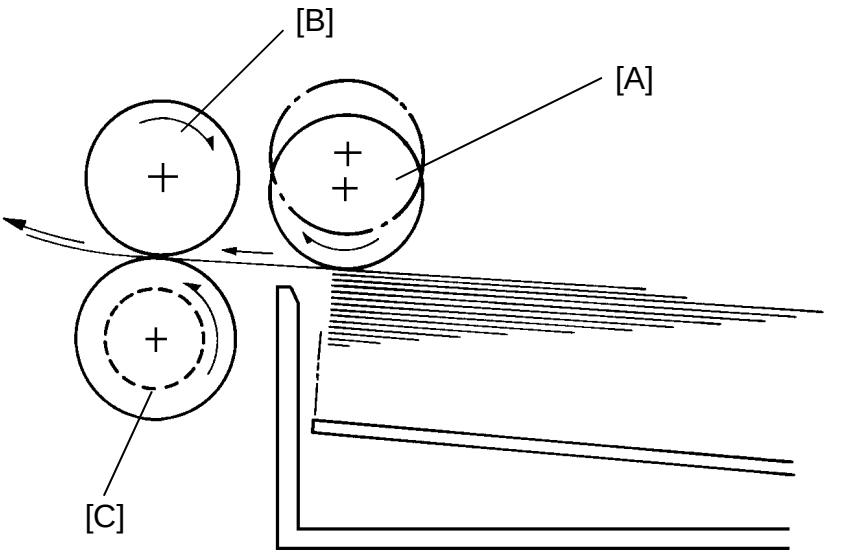


This model has three drawer tray paper feed stations.

The first feed station is a 500 sheet universal tray, the second and third feed stations are 500 sheet trays.
Paper can also be fed using the by-pass feed table [A] which has an independent feed mechanism. The by-pass feed table can hold 50 sheets of paper.

All feed stations use an FRR feed system. Rotation of the pick-up roller [B] drives the top sheets of paper from each tray to the feed [C] and the separation [D] rollers. The feed and separation rollers then take over paper drive. If more than one sheet is fed by the pick-up roller, the separation roller rotates in the opposite direction and prevents all but the top sheet from passing through to the registration rollers [E].

11.2 FRR FEED SYSTEM



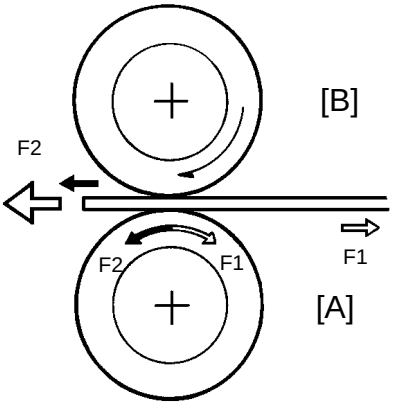
This copier uses an FRR paper feed system using three rollers.

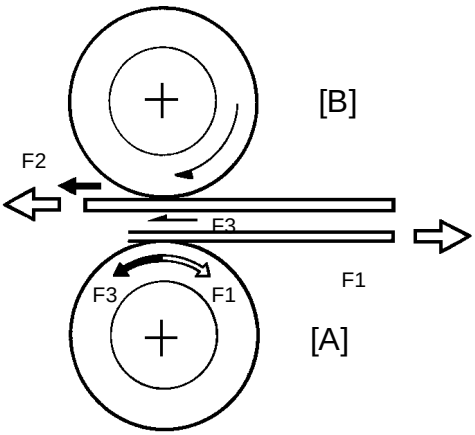
11.2.1 Pick-up Roller

The pick-up roller [A] is not in contact with the paper stack before it starts feeding paper. Shortly after the Start key is pressed, the pick-up roller drops down and feeds the top sheet between the feed [B] and the separation rollers [C]. At almost the same time that the paper's leading edge arrives at the feed roller, the pick-up roller lifts off the paper stack so that it does not interfere with the operation of the feed and separation rollers. The feed and separation rollers then take over the paper feed process.

11.2.2 Feed and Separation Rollers

There is a one-way bearing inside the feed roller so it can turn only in one direction. The separation roller is driven in the opposite direction to the feed roller. The separation roller, however, is driven through a slip clutch (torque limiter clutch) which allows it to turn in either direction depending on the friction between the rollers. The separation roller solenoid keeps the separation roller in contact with the feed roller.

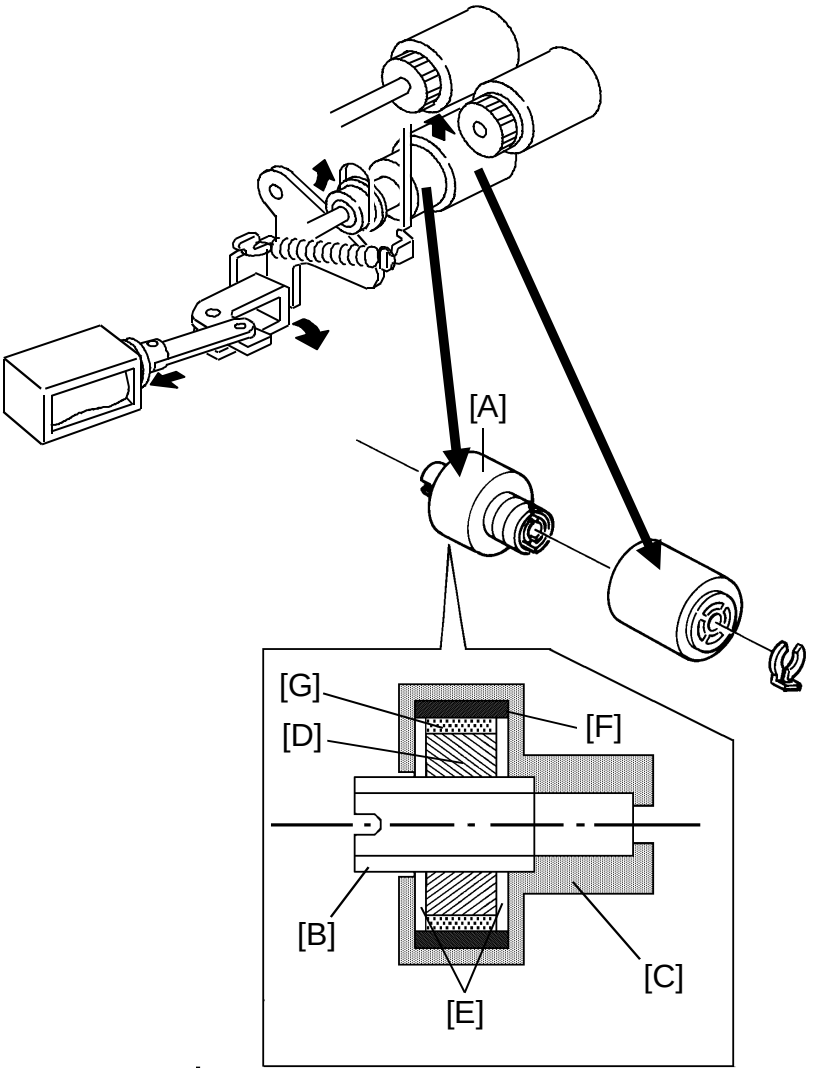




The direction in which the separation roller [A] turns depends on the frictional forces acting on it. The slip clutch applies a constant clockwise force (F1). When there is a single sheet of paper being driven between the rollers, the force of friction between the feed roller [B] and the paper (F2) is greater than F1. So, the separation roller turns counterclockwise.

If two or more sheets are fed between the rollers, the forward force on the second sheet (F3), becomes less than F1 because the friction between the two sheets is small. So, the separation roller starts turning clockwise and drives the second sheet back to the tray.

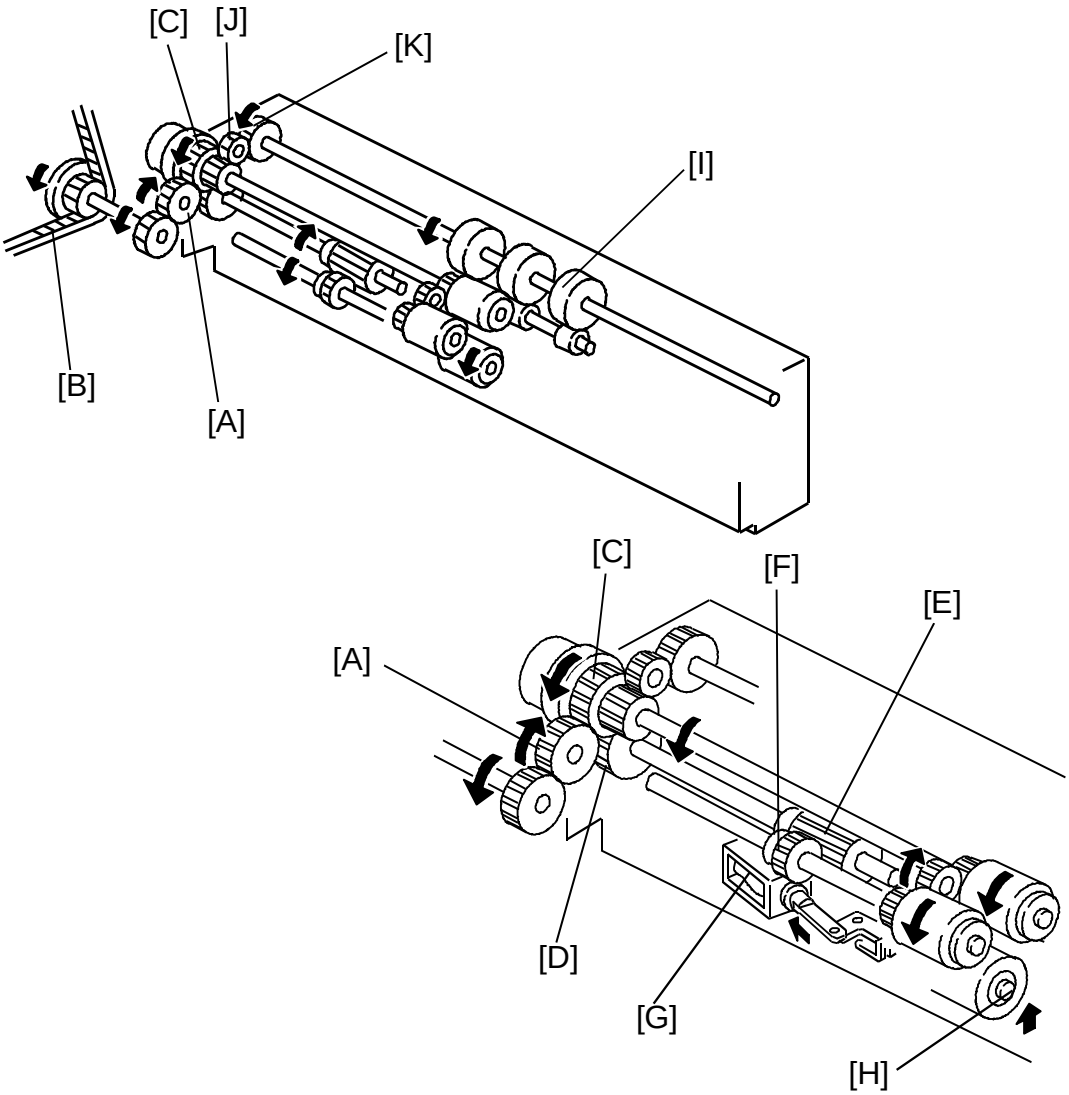
11.3 SLIP CLUTCH MECHANISM



The slip clutch [A] consists of the input hub [B] and the output hub [C] which is the case of the clutch as well. The magnetic ring [D] and the steel spacers [E] are fitted onto the input hub. The ferrite ring [F] is fitted into the output hub. Ferrite powder [G] packed between the magnetic ring and the ferrite ring [F] generates a constant torque due to magnetic force. The input hub and the output hub slip when the rotational force exceeds the constant torque.

This type of slip clutch does not require lubrication.

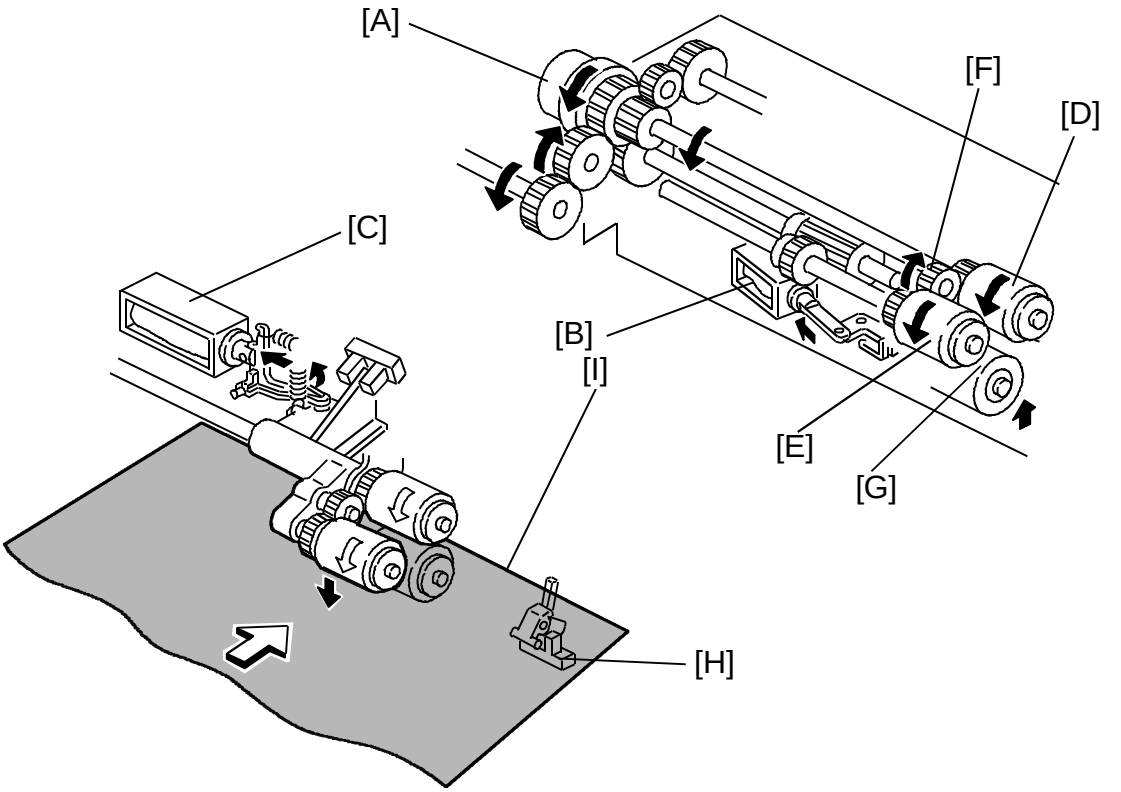
11.4 FRR FEED DRIVE MECHANISM



The rotation of the paper feed motor is transmitted to the gear [A] via the timing belt [B], and then transmitted to the separation roller via the feed clutch gear [C], gear [D], gear [E] and gear [F].

If the paper feed station is not selected, the separation roller solenoid [G] de-activates and the separation roller [H] rotates freely in the reverse direction of paper feeding.

Gear [A] also transmits the drive to the vertical transport roller [I] via gear [C], idle gear [J] and gear [K].



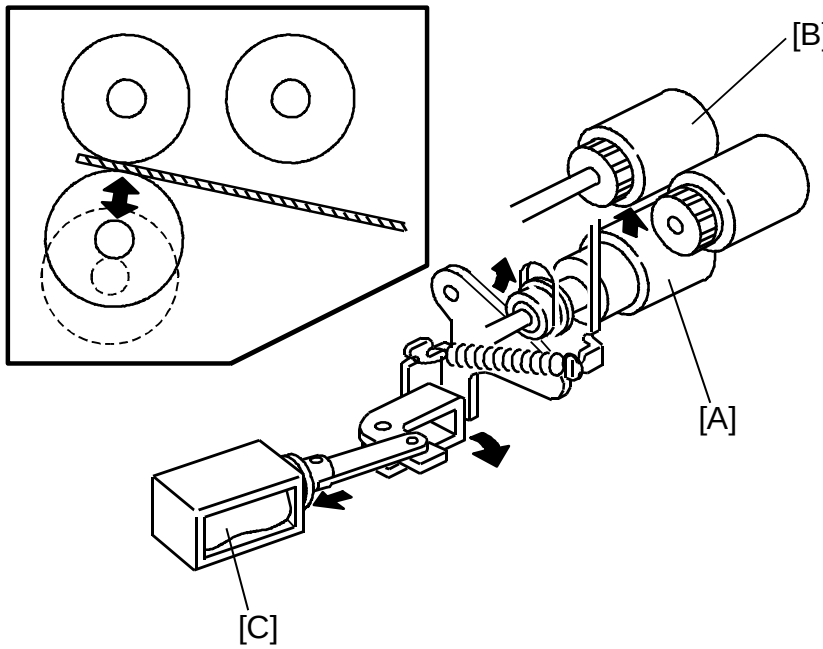
When the paper feed station is selected and the Start key is pressed, the feed clutch [A], separation roller solenoid [B], and the pick-up solenoid [C] turn on at once.

When the feed clutch [A] activates to rotate the feed roller [D], the feed roller and the pick-up roller [E] turn together because they are linked by the idle gear [F].

When the separation roller solenoid [B] turns on, the separation roller [G] contacts the feed roller [D] and both rollers rotate together.
The drive from the feed roller causes the separation roller to resist the drive from its shaft.
Because of this resistance, the torque limiter between the separation roller and the shaft breaks transmission of the drive from the shaft.

When the pick-up solenoid [C] activates, the pick-up roller [E] lowers to make contact with the top sheet of the paper stack and send it to the feed and separation rollers.
When the paper feed sensor [H] detects the leading edge of the paper [I], the pick-up solenoid de-energizes to lift the pick-up roller and the paper feed clutch de-energizes at a certain time to wait until it is ready to feed to the registration rollers.

11.5 SEPARATION ROLLER RELEASE MECHANISM



In this model, the separation roller [A] is normally away from the feed roller [B]. When the paper feed station is selected, the separation roller solenoid [C] contacts the separation roller to the feed roller as explained in the previous two pages.

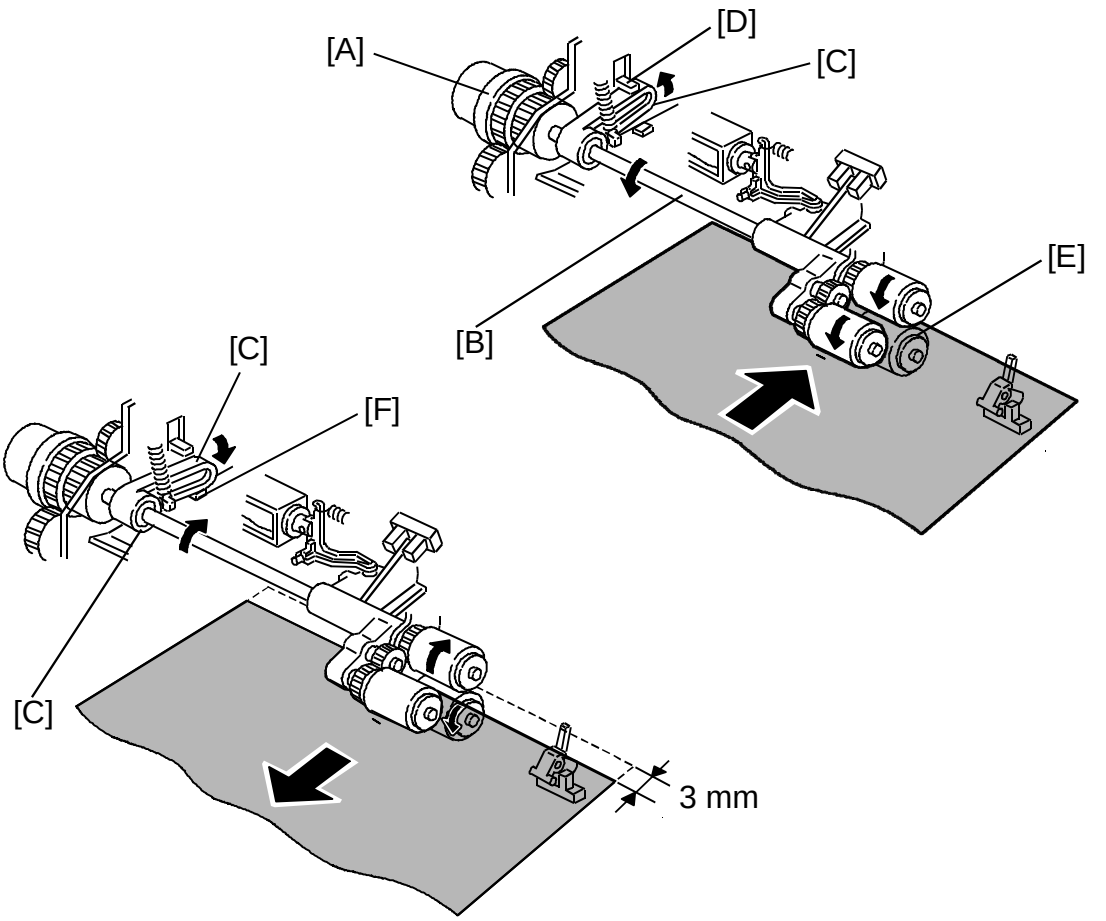
This contact/release mechanism has the following three advantages:

1. When the paper feed motor turns on, all separation rollers in each feed station rotate. If the separation roller is away from the feed roller, it reduces the mechanical load to the paper feed motor and drive mechanism, and also reduces wear on the rubber surface of the separation roller due to the friction between the feed roller and the separation roller.

2. After paper feeding is completed, paper sometimes remains between the feed roller and the separation roller.
   If the feed tray is drawn out in this condition, it is possible for the remaining paper to be torn.
   When the separation roller is away from the feed roller, remaining paper is released from between the feed and the separation rollers.

3. When paper misfeeds occur around this area, users can easily pull out jammed paper between the feed and the separation rollers because the separation roller is away from the feed roller.

11.6 PAPER RETURN MECHANISM



When the paper feed clutch [A] activates and the feed roller drive shaft [B] rotates, the lever [C] rotates together with the shaft. However, the lever is immediately stopped by the stopper [D].

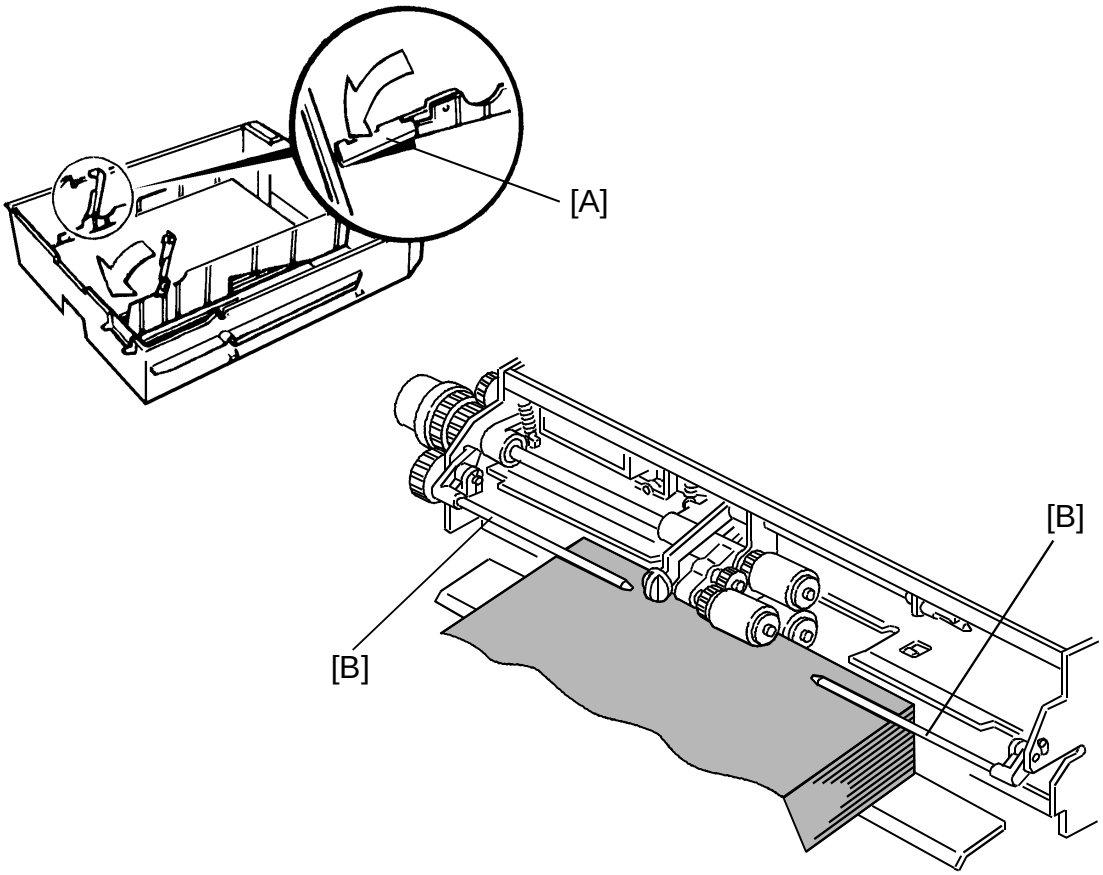
After all paper is fed and the paper feed clutch turns off, the paper feed motor still rotates to turn the separation roller [E] in the reverse direction. The separation roller, still contacting the feed roller, turns the feed roller in the reverse direction until the lever hits the rubber cushion [F].

By this feed roller reverse mechanism, the paper remaining between the feed and the separation rollers returns 3mm to the paper feed tray.

After that, the separation roller solenoid turns off to move the separation roller away from the feed roller. This releases the leading edge of the paper and drops the paper to the paper feed tray.

This prevents remaining paper from being torn when the feed tray is drawn out.

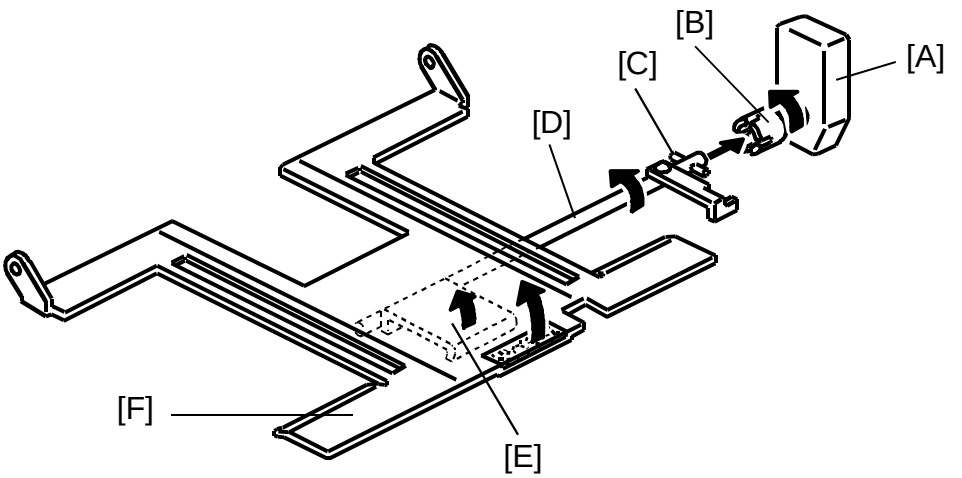
11.7 PAPER SKEW PREVENTION MECHANISM



In this model, paper corner holders [A] are not used to facilitate paper loading.

Instead of the corner holders, both paper press arms [B] press down both paper side edges, especially in the case of paper with a face curl. This helps the tray side fences guide the paper to prevent paper skew or jams.

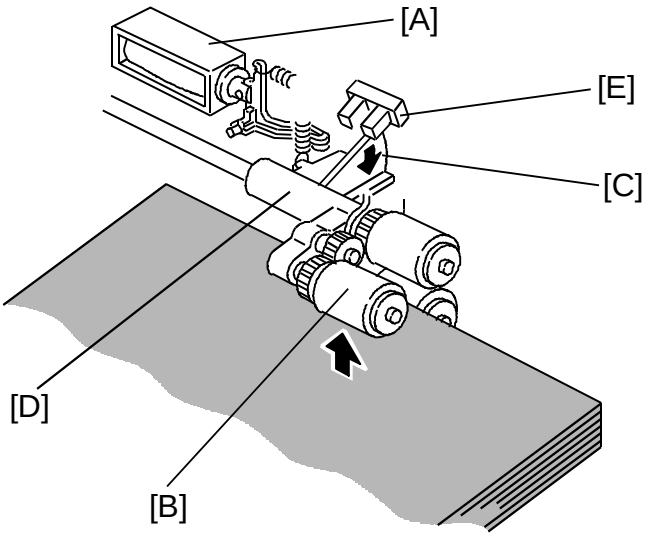
11.8 PAPER LIFT MECHANISM

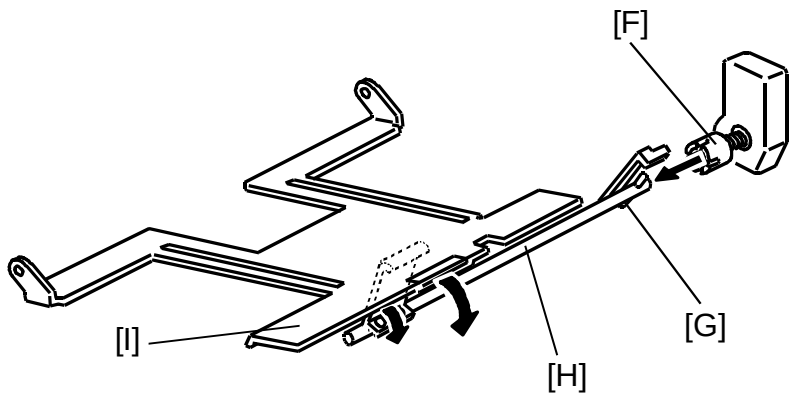


When the tray is set in the machine, the machine detects this condition by using several detection methods as shown in the table:

Feed station	Switches
1st	Paper size switch
2nd	Tray set switch
3rd	Tray set switch

When the machine detects that the paper tray is set in the machine, the lift motor [A] rotates and the coupling gear [B] on the tray lift motor engages the pin [C] of the lift arm shaft [D], then turns the tray lift arm [E] to lift the tray bottom plate [F].



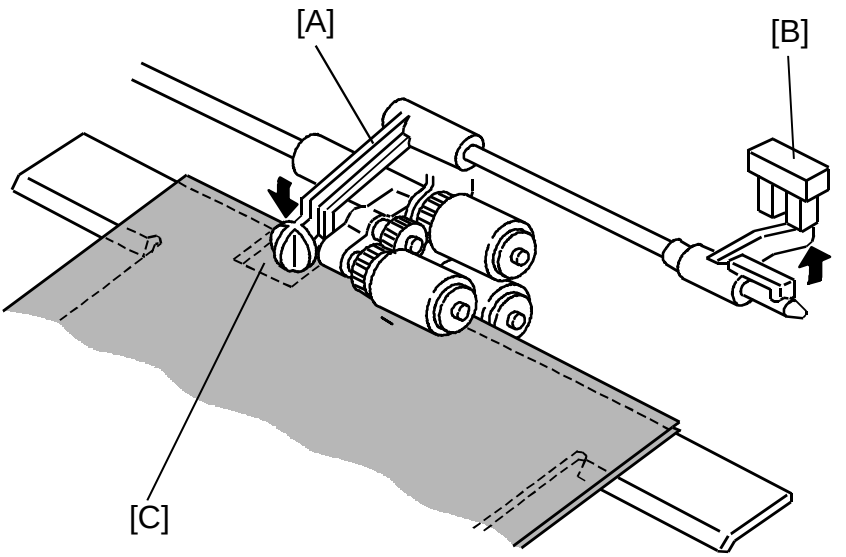


When the lift motor turns on, the pick-up solenoid [A] activates to lower the pick-up roller [B]. When the top sheet of paper reaches the proper paper feed level, the paper pushes up the pick-up roller and the actuator [C] on the pick-up roller supporter [D] activates the lift sensor [E] to stop the lift motor.

After several paper feeds, the paper level gradually lowers then the lift sensor is de-activated and the lift motor turns on again until the lift sensor is activated again.

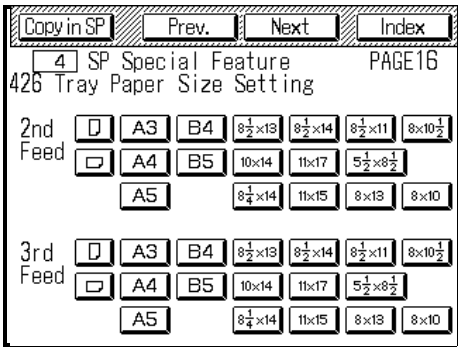
When the tray is drawn out of the feed unit, the lift motor coupling gear [F] disengages the pin [G] of the lift arm shaft [H], then the tray bottom plate [I] drops.

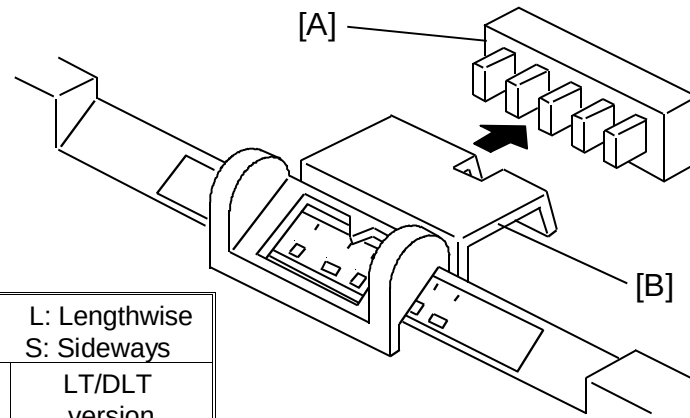
11.9 PAPER END DETECTION



If paper is loaded in the paper tray, the paper end feeler [A] is raised by the paper stack and the paper end sensor [B] is deactivated. When the paper tray runs out of paper, the paper end feeler drops in the cut out [C] of the tray bottom plate and the paper end sensor is activated.

11.10 PAPER SIZE DETECTION



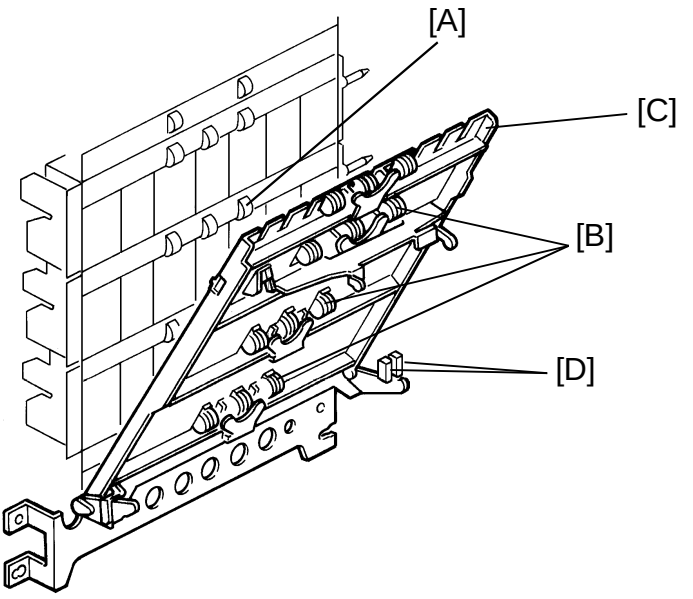


SW Actuate....0 De-actuate....1 1 2 3 4 5	Paper size	L: Lengthwise S: Sideways
	A4/A3 Version	LT/DLT version
01111	A3–L	11 x 17–L
00111	B4–L	8 1/2 x 14–L
10011	A4–L	8 1/2 x 11–L
01001	A4–S	8 1/2 x 11–S
00100	8 1/2 x 13	5 1/2 x 8 1/2–S
00010	–	8 x 10–S
00001	A5–S	8 x 10–L
10000	–	8 x 13–L
11000	–	10 x 14–L
11100	–	11 x 15–L
11110	A5–L	5 1/2 x 8 1/2–L

For the second and the third feed trays, the paper size is put in memory by using the SP mode. (4 SP Special Feature – PAGE 16)

For the first feed tray (universal tray), the paper size switch [A] detects the paper size. The paper size switch has five microswitches inside. The paper size switch is actuated by an actuator plate [B] located on the rear of the tray. Each paper size has its own unique combination of actuation, as shown in the table, and the CPU judges the paper size by this combination of activated switches.

11.11 VERTICAL TRANSPORT MECHANISM

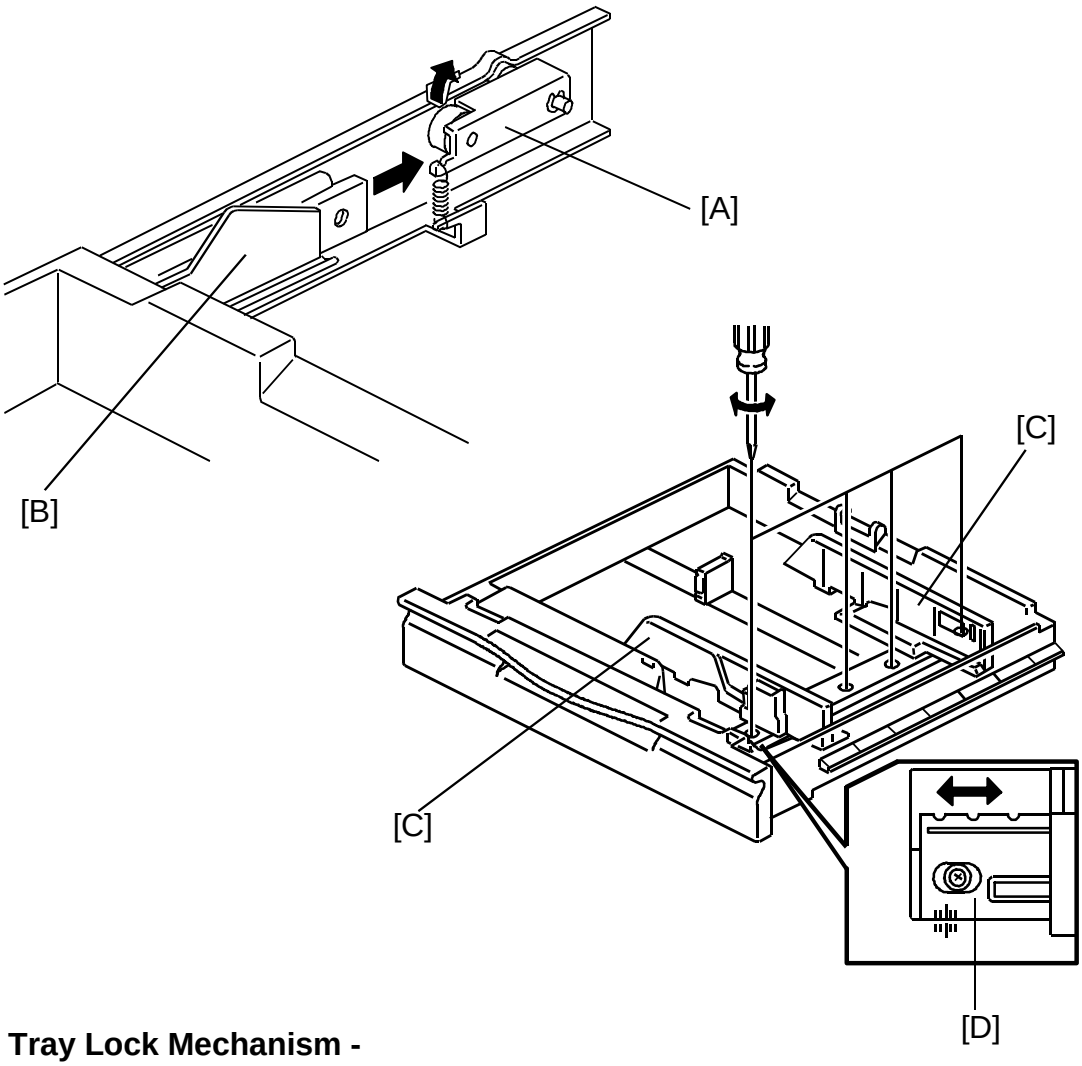


The vertical transport rollers [A] in each feed unit is driven by the paper feed motor. The vertical transport rollers, and the driven vertical transport rollers [B] on the vertical guide plate [C], transport the paper from each feed unit to the registration rollers.

The transport guide can be opened to access jammed paper in the vertical transport area.

The vertical transport set switches [D] detect whether the vertical transport guide is open or not.

11.12 TRAY POSITIONING MECHANISM



- Tray Lock Mechanism -

When the feed tray is set in the paper feed unit, the lock lever [A] drops behind the lock plate [B] on the Accuride support bracket to lock the tray in the proper position.

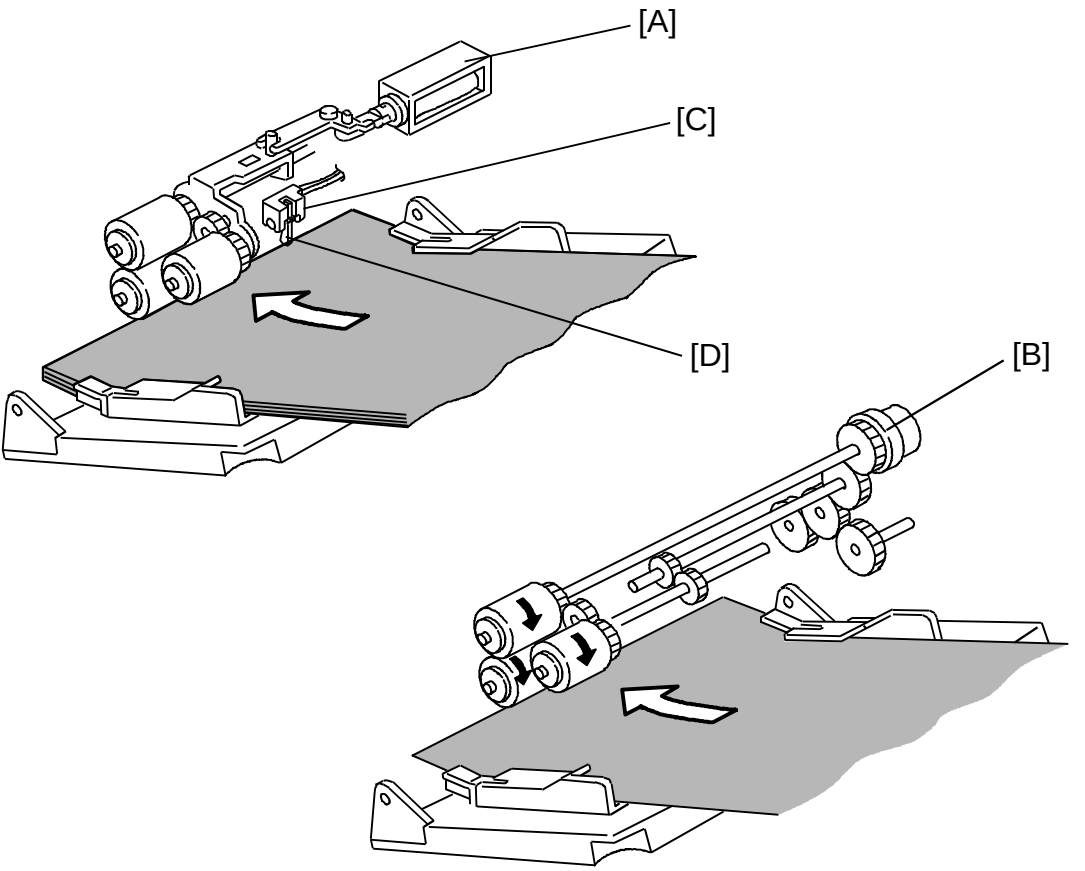
- Side-to-side Positioning Mechanism -

Side plates [C] are fixed on the positioning plate [D]. By moving the positioning plate (fixed by four screws), the paper position can be changed to adjust the side-to-side registration.

NOTE: As the paper tray was commonly designed with other models, this side-to-side positioning mechanism is remaining on this model. However, **do not use this adjustment in the field**. The side-to-side registration can be adjusted for each feeding station by SP mode (SP1-3, No. 104).

11.13 BY-PASS FEED TABLE

11.13.1 Feed Mechanism / Paper End Detection

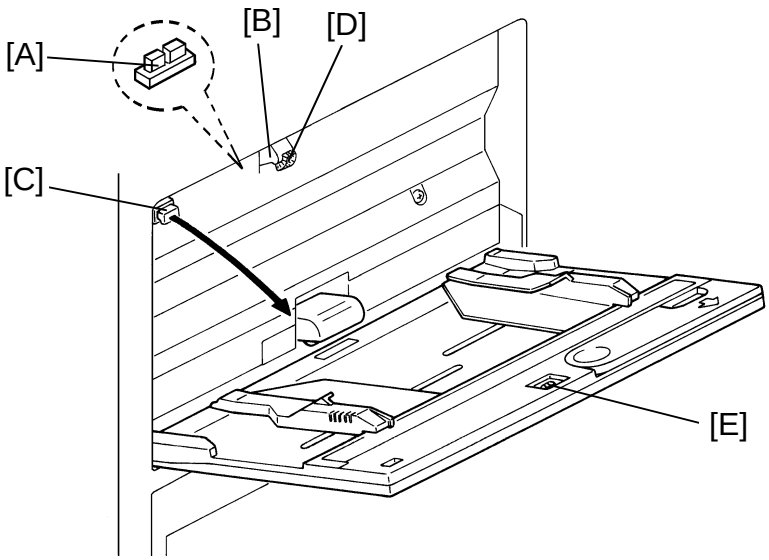


The by-pass feed table uses the FRR feed system. The pick-up solenoid [A], and by-pass feed clutch [B] control paper feeding from the by-pass feed table.

The by-pass paper end sensor [C] detects if there is paper on the by-pass feed table.

When there is no paper on the by-pass feed table, the paper end feeler [D] drops in the cut out of the lower guide plate and the paper end sensor deactivates. When paper is present on the by-pass feed table, the paper pushes up the end feeler [D] to activate the paper end sensor [C]. The CPU turns off the paper end indicator on the LCD panel and turns the start key from red to green.

11.13.2 Table Open/Close Detection



When the by-pass feed table is opened, the by-pass feed table sensor [A] is activated by the actuator [B]. Then the CPU turns on the by-pass feed indicator on the operation panel.

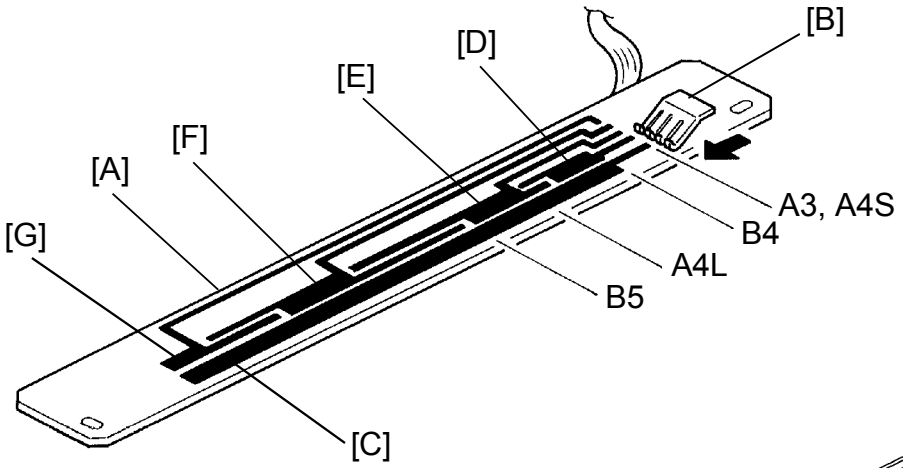
When the by-pass feed table is opened, the LCD indicates the OHP, Thick paper, and Odd size keys.
These modes can be selected only when the paper is fed from the by-bass feed table.

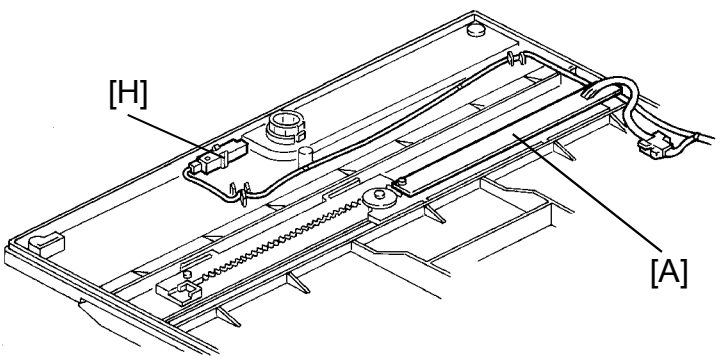
On this model, opening the by-pass feed table does not shift the copier into interrupt mode. The selected modes and input data before opening the by-pass feed table remain. Also other paper trays can be selected while the by-pass feed table is open.

The by-pass feed table is held by the latch [C]. When the upper left corner of the by-pass feed table is pressed, this latch comes out and unlocks the feed table.
When the by-pass feed table is closed, the latch is pressed in and catches the feed table.

The brush [D] on the by-pass feed table sensor actuator cleans the by-pass length sensor surface when the table is closed.

11.13.3 Paper Size Detection



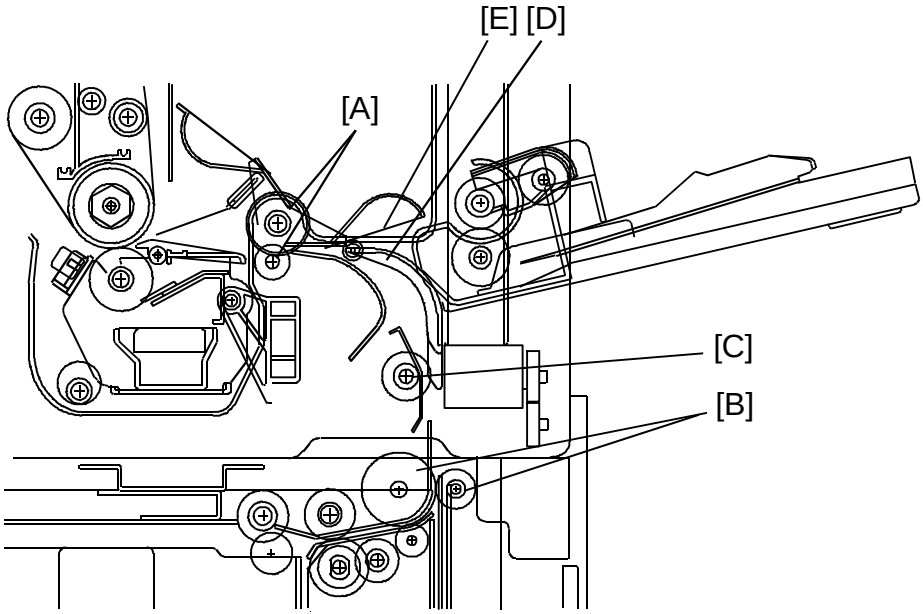


As for editing functions such as centering, edge erase etc. paper size information is necessary. The paper size detection mechanism is equipped with the by-pass feed table.

The paper width detecting board [A] monitors the paper width. The rear side fence is connected to the terminal plate [B]. When the side fences are positioned according to the paper width, the terminal plate is shifted accordingly. The terminal plate consists of four terminals and two of them always touches the ground pattern [C]. The other two terminals touch the patterns on the board. The pattern is separated into four areas [D], [E], [F], [G]. The high or low (grounded) condition of these four areas differ according to the paper size and the main CPU monitors each area condition and judges the paper width.

The by-pass length sensor [H] detects whether the paper is longer than A4 (letter) sideways or not.
By the combination of the paper width data and the paper length sensor output, the machine decides the paper size.

11.14 PAPER REGISTRATION



The registration rollers [A] have two functions. One is aligning the lead edge of the paper with the leading edge of the image on the transfer belt. Registration clutch turns on at the programmed time. It turns off 30 pulses after the trailing edge of the paper is detected by the registration sensor.

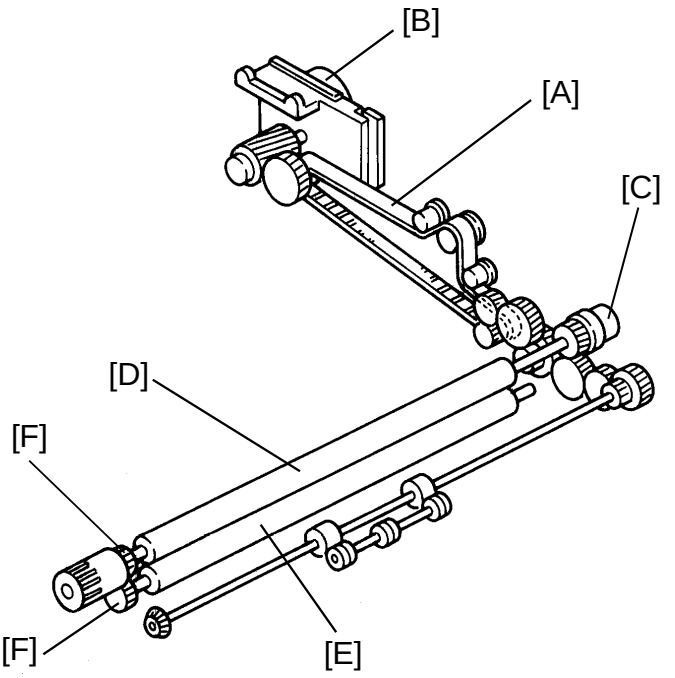
The other function is to correct skewing of paper fed from the trays. When the leading edge of the paper reaches the registration rollers, the vertical transport rollers [B] and relay roller [C] continuously turn to transport the paper. When the registration rollers are not turning, the leading edge of the paper is pushed against the registration rollers. This makes a little buckle on the paper between the vertical transport rollers and the registration rollers to correct paper skew.

The registration sensor makes "ON" check to detect if the paper is arriving correctly.

Shortly after the leading edge of the paper reaches the registration roller, the registration clutch activates to feed the paper.

To have a large enough paper buckle during paper registration without damaging the paper, the upper guide plate [D] (for paper from the paper trays) and the guide mylar [E] (for paper from the by-pass feed table) are moved up by the paper when the paper buckle is fully created.

11.15 REGISTRATION DRIVE MECHANISM



Through the timing belt [A], transport motor [B] rotation is transmitted to the registration clutch [C]. When the registration clutch activates, the transport motor drive is transmitted to the upper registration roller [D], then to the lower registration roller [E] via two gears [F] at the front side.

SECTION 3

INSTALLATION

1. INSTALLATION REQUIREMENTS

1.1 ENVIRONMENT

1. Temperature Range: 10°C to 32°C (50°F to 89°F)
2. Humidity Range: 15% to 90% RH
3. Ambient Illumination: Less than 2,000 lux (Do not expose to direct sunlight.)
4. Ventilation: Minimum space 20 m^3.
   Room air should turn over at least 30 m^3/hr/person
5. Ambient Dust: Less than 0.15 mg/m^3 (4 x 10^{-6}, 4 x 10^{-6}, Oz/yd^3)
6. If the place of installation is air-conditioned or heated, do not place the machine
   a) where it will be subjected to sudden temperature changes,
   b) where it will be directly exposed to cool air from an air conditioner,
   c) where it will be directly exposed to heat from a heater.
7. Do not place the machine where it will be exposed to corrosive gasses.
8. Do not install the machine at any location over 2,000 m (6,500 feet) above sea level.
9. Place the copier on a strong and level base.
10. Do not place the machine where it may be subjected to strong vibrations.

1.2 MACHINE LEVEL

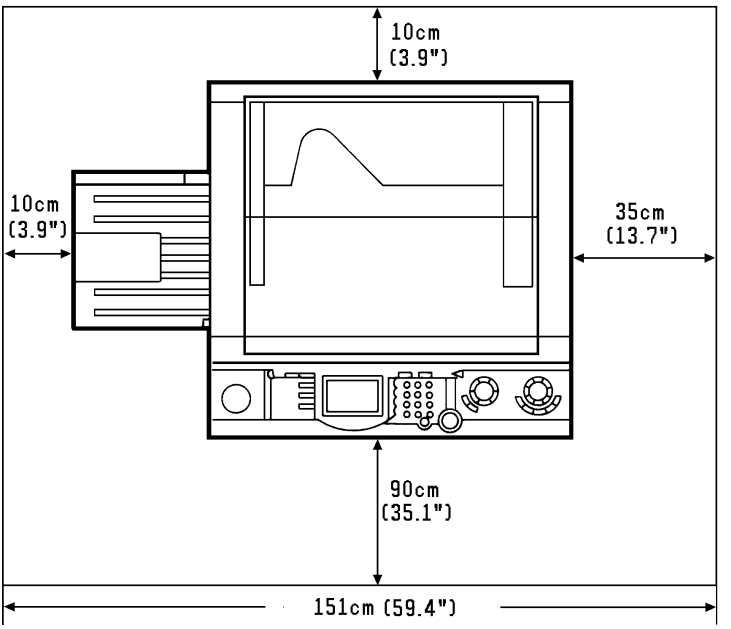
1. Front to back: Within 5 mm (0.2") of level
2. Right to left: Within 5 mm (0.2") of level

NOTE: The machine legs may be screwed up or down in order to level the machine. Set a carpenter's level on the exposure glass when you do this.

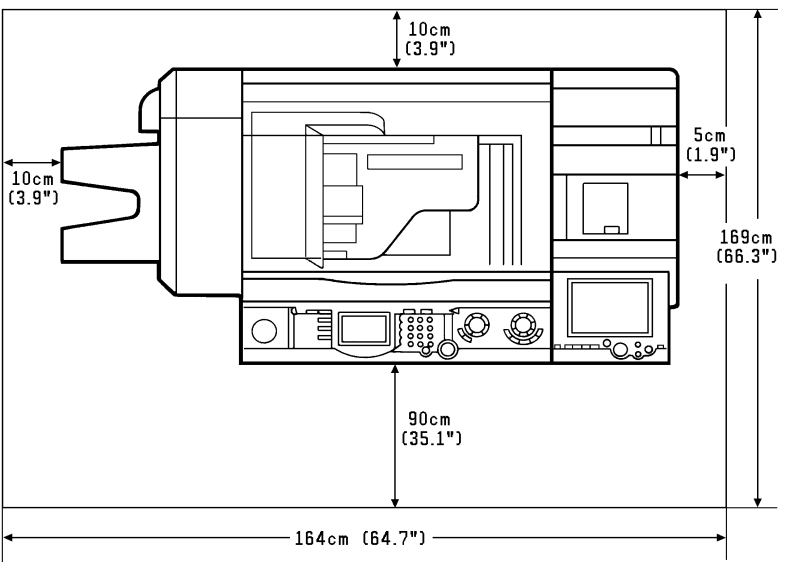
1.3 MINIMUM SPACE REQUIREMENTS

Place the copier near the power source, providing clearance as shown:

Copier only



Full system



NOTE: A space of at least 10 cm (3.9") at the rear of the machine is necessary for smooth air inlet into the machine.

1.4 POWER REQUIREMENTS

1. Input voltage level: 115 V/60 Hz: More than 12 A
   220 ~ 240 V, 50/60 Hz: More than 7 A

2. Permissible voltage fluctuation: 10%

3. Do not set anything on the power cord.

NOTE: a) Make sure the plug is firmly inserted in the outlet.
b) Avoid multi-wiring.

2. COPIER INSTALLATION

2.1 ACCESSORY CHECK

Check the quality and condition of the accessories in the box according to the following list:

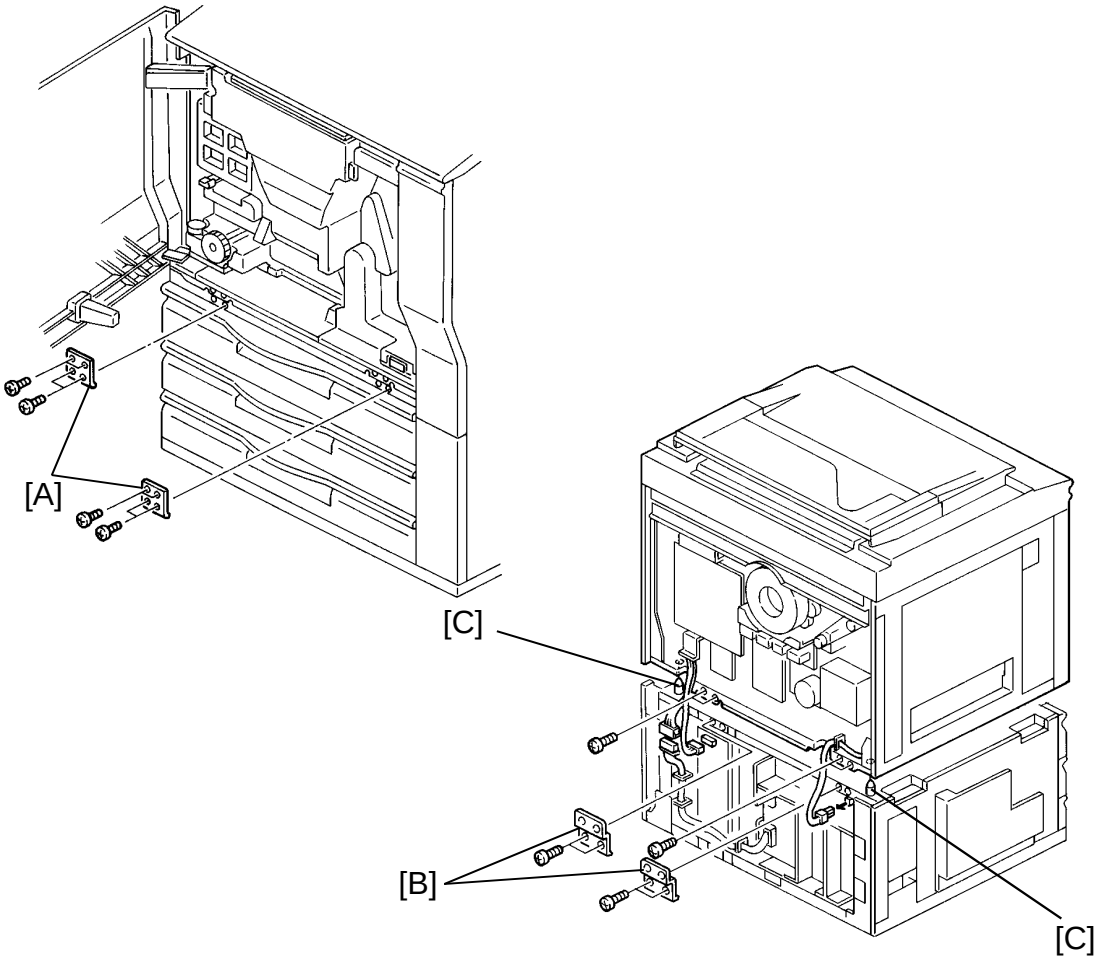
2.1.1 Copier

1. Operating Instructions (Except -27 machine) 1
2. Envelop - NECR (-17 Only) 1
3. NECR (-17, -27, machine only) 1
4. Exit tray 1
5. Operating Instructions Holder 1
6. Total Counter Resetting Tool 1
7. Leveling Shoe 4
8. Instructions Procedure Sheet 1
9. Philips Truss Head screws M4 x 8 2
10. Caution Decal -4 Languages (-22, -26, -27 only) 1
11. Ferrite Core - Large (-22, -26, -27 only) 1
12. Ferrite Core - Small (-22, -26, -27 only) 1
13. Additional Procedure Sheet for DJF Installation (-22, -26, -27 only) 1

2.1.2 Optional Table (Option: A702)

1. Base Bracket 1
2. Table Cover 1
3. Front Cover 1
4. Lower Cover 1
5. Philips Pan Head screws M4 x 6 9
6. Philips Truss Head screws M4 x 6 2

2.2 COPIER SEPARATION



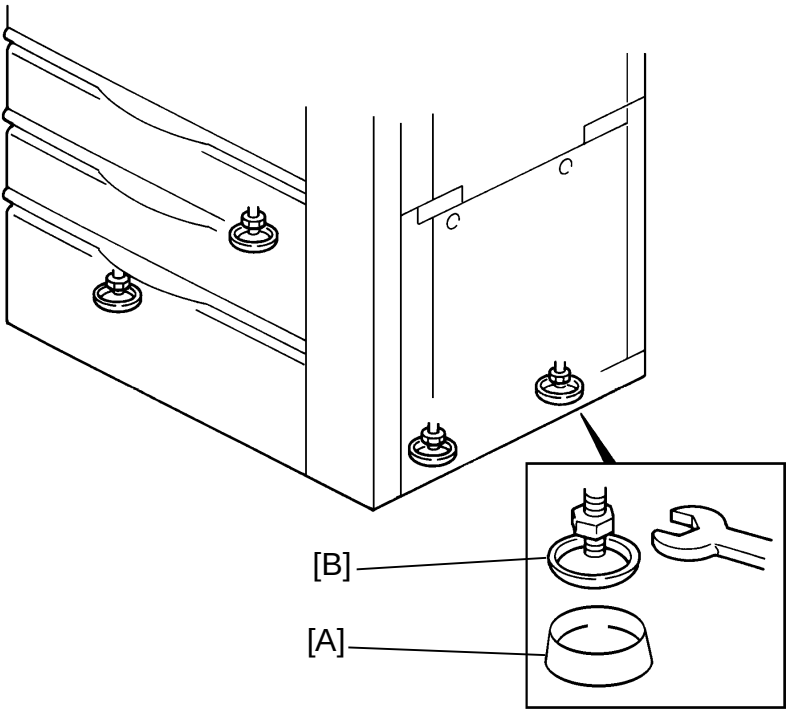
The machine can be separated into two units (the main frame and paper supply unit).
Separation of the machine will help the transportation to the customer's site.

1. Open the front door and remove the front securing brackets [A] (4 screws each).
2. Remove both upper and lower rear covers (4 screws each).
3. Remove the rear securing brackets [B] (4 screws each).
4. Disconnect the connectors running between both units, and free them from the harness clamps.
5. Lift-up the machine by using the handles.

NOTE: a) When lifting the machine, lift straight up. Positioning pins [C] are located at the rear.
b) When attaching, make sure to clear the harnesses out of the way.

2.3 COPIER INSTALLATION PROCEDURE

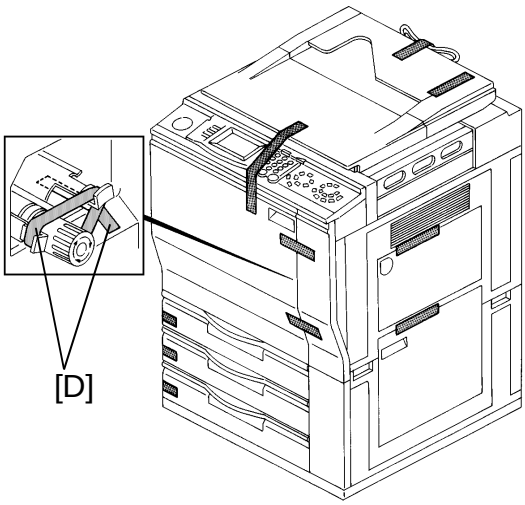
NOTE: Since the installation procedure is not packed with the copier as an accessory, always bring this manual with you.

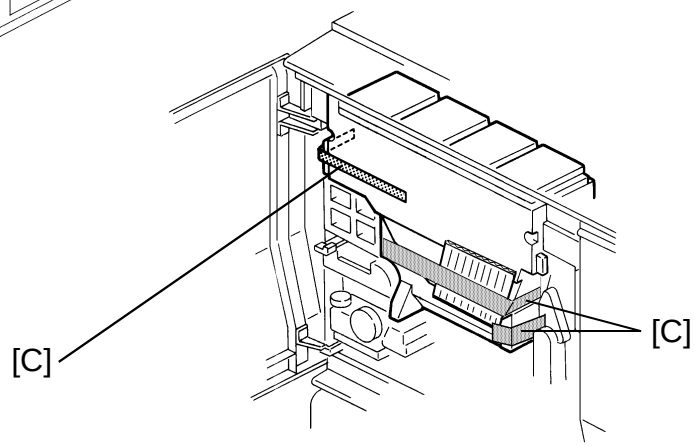


CAUTION: 1) When removing the drum protective sheet, always remove all the development units out of the copier.
2) When installing the copier, make sure that the copier is unplugged.

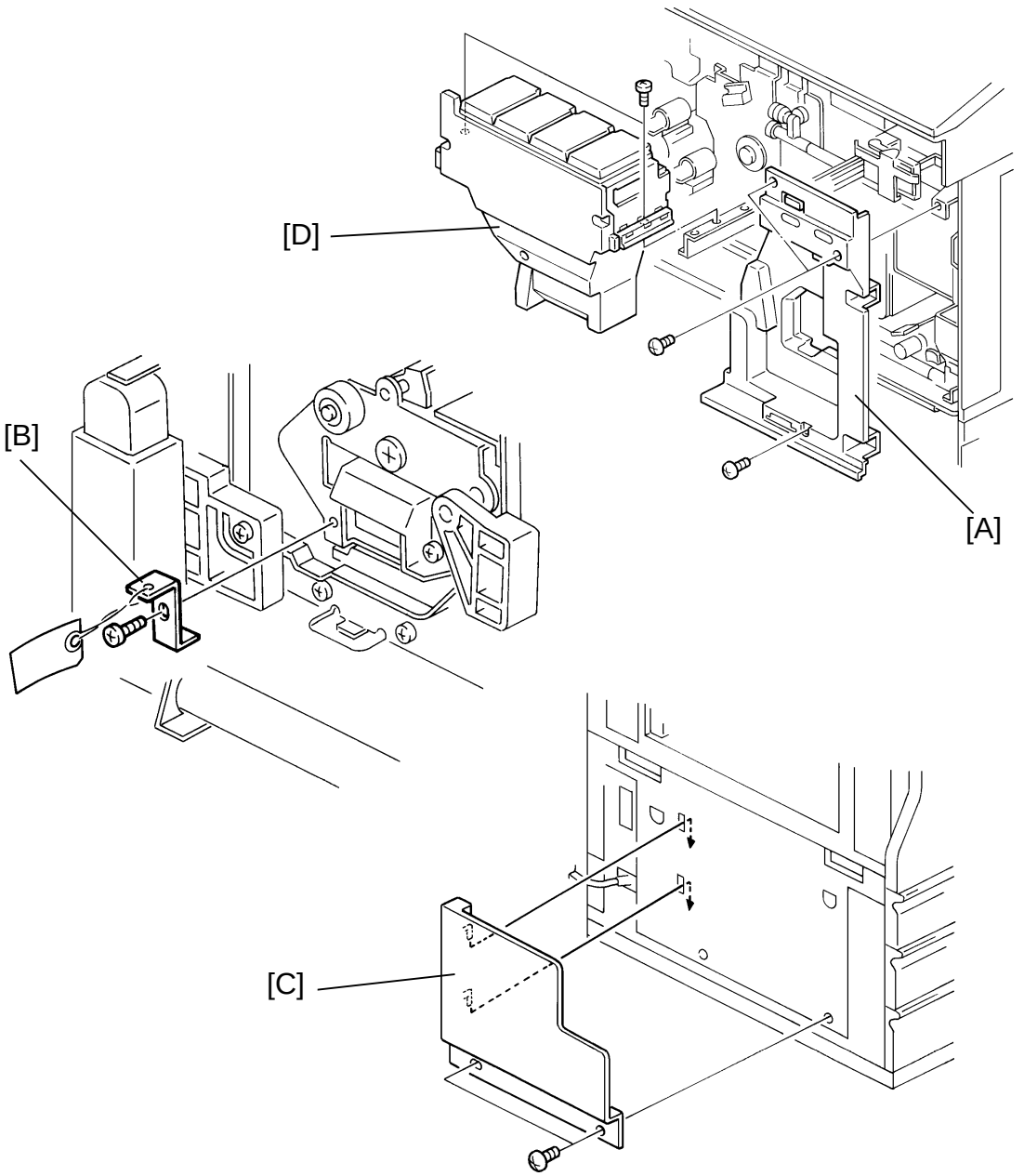
NOTE: a) Insert the leveling shoes [A] under the leveling foots [B], and level the machine if necessary. (The leveling foots can be screwed up or down.)

b) Keep the factory set data sheet under the operation panel for future use. We recommend making a copy to be kept at your office also.

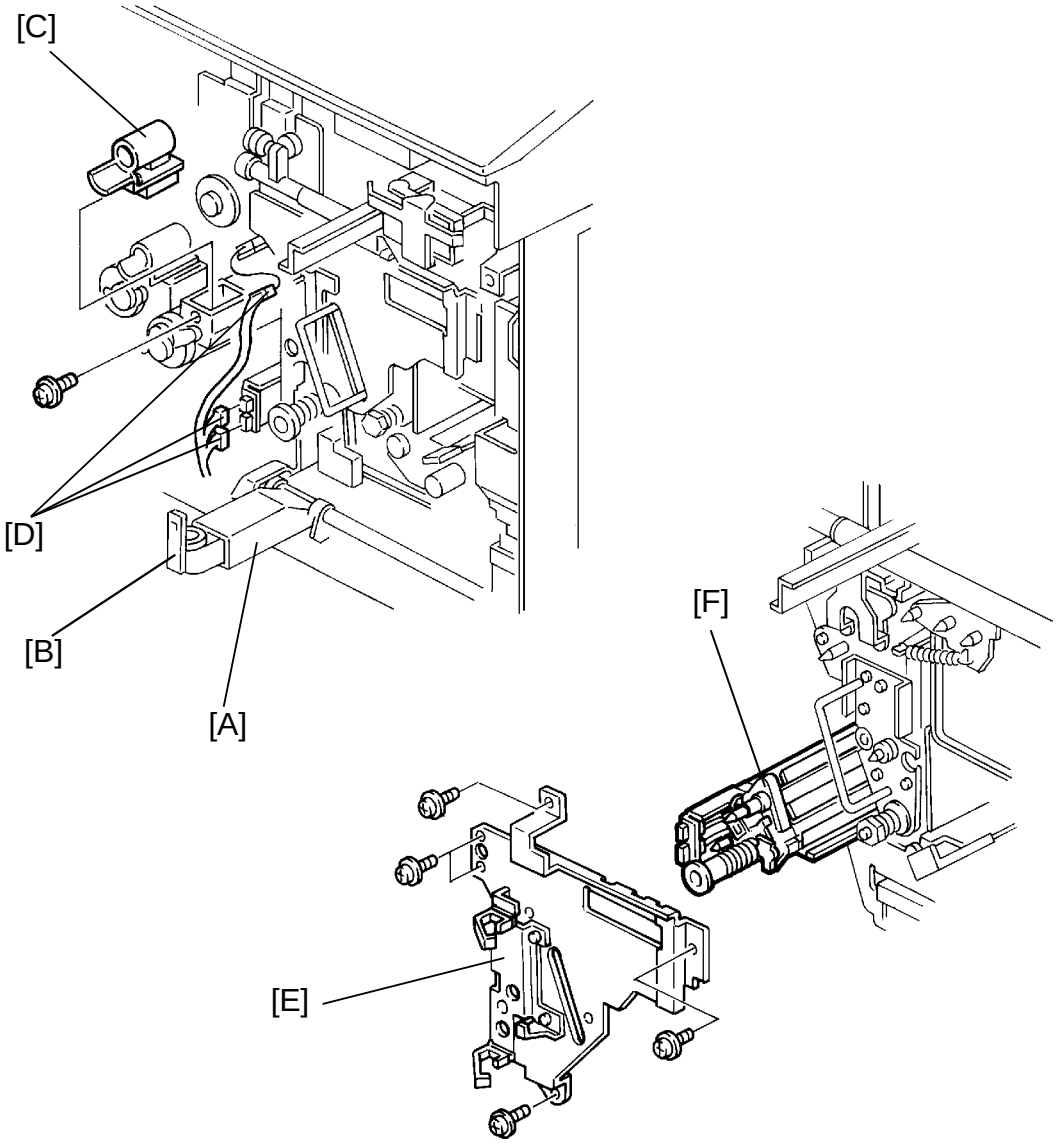




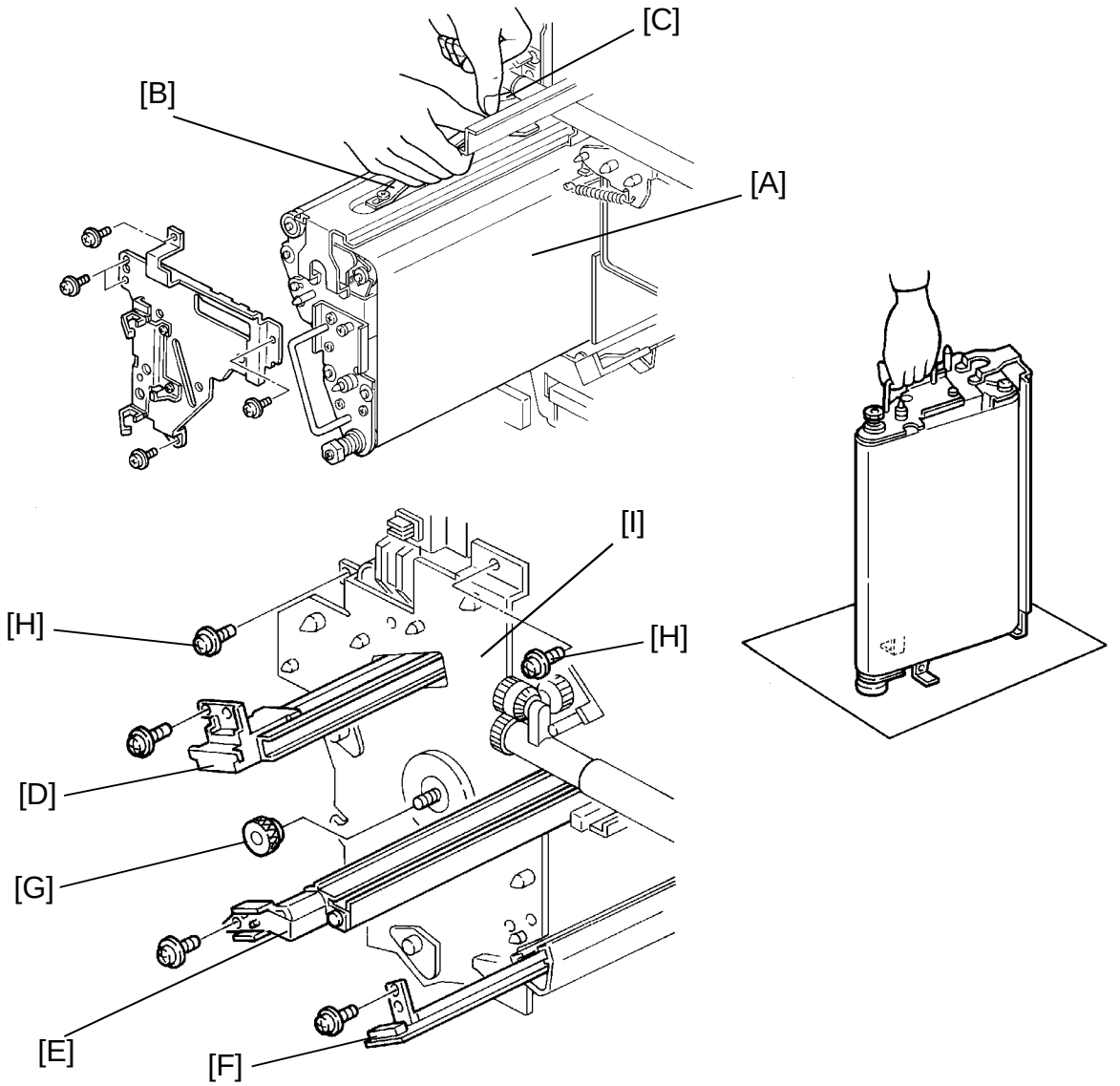
1. Remove the tape strips.
2. Open the front doors then remove the tape strips [C] around the toner tank and two tapes [D] fixing the registration guide plates (B_1 and B_3 knobs).



3. Remove the right inner cover [A] (3 screws).
4. Remove the bracket [B] fixing the transfer roller unit (1 screw).
5. Install the operating instruction holder [C] (two M4 x 8 truss screws).
6. Push and slide out the toner tank [D]. Then remove the toner tank [D] (2 screws).



7. Lower the toner collection duct [A] (1 hook [B]).
8. Remove the yellow toner supply receptacle [C] (1 screw).
9. Disconnect the three connectors [D] and free them from the three harness clamps.
10. Remove the transfer belt stay [E] (5 screws).
11. Pull and remove the transfer belt cleaning unit [F] out.

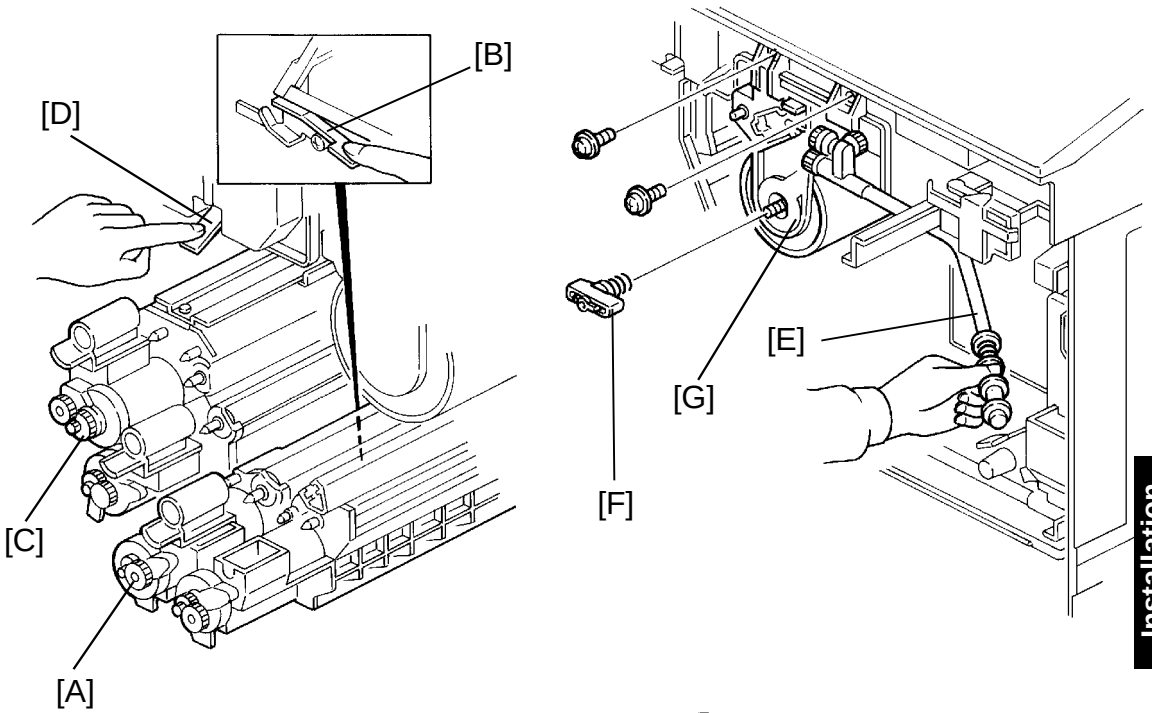


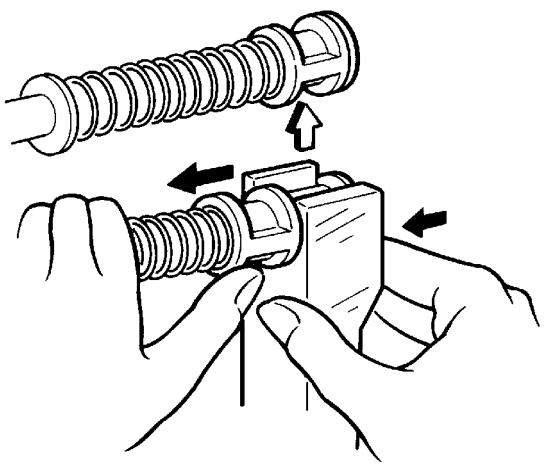
12. Carefully pull and remove the transfer belt unit [A]. (While holding the handle [B], release the lever [C])

    NOTE: There are stands at the rear side of the transfer belt unit. After pulling out the unit out of the machine, make the transfer belt unit stand as shown.
    Do not touch the transfer belt surface with your oily bare hands.

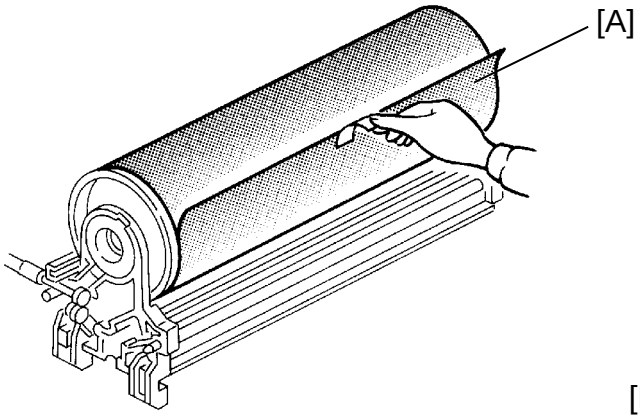
13. Remove the charge corona unit [D] (1 screw), PCC [E] (1 screw) and ID sensor board [F] (1 screw).

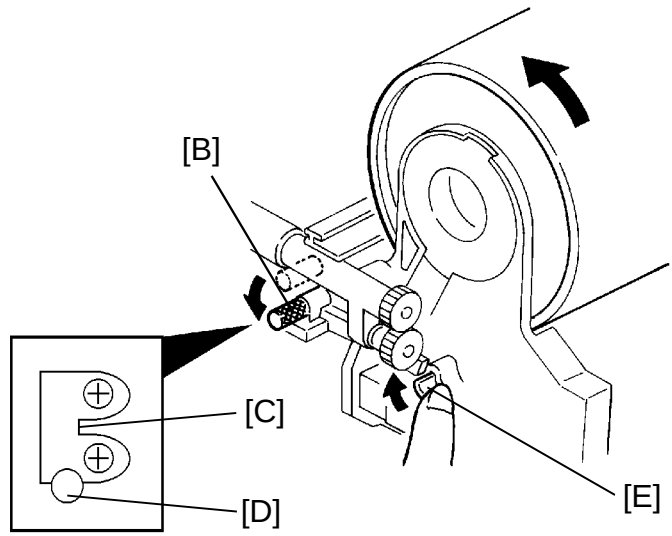
14. Remove the knob [G] and the two screws [H] and slightly (2 ~ 3 cm) pull out all the development units then remove the drum stay [I].





15. Remove the magenta/yellow development unit [A] (1 release lever [B]) and remove the black/cyan development unit [C] (1 release lever [D]).
16. Disconnect the drum's toner collection pipe [E] as shown.
17. Remove the knob screw [F] (counterclockwise) and pull out the quenching lamp.
18. Remove the drum unit [G] (2 screws).





19. Turn over the drum unit.

    NOTE: Let the unit rest on it's casing.

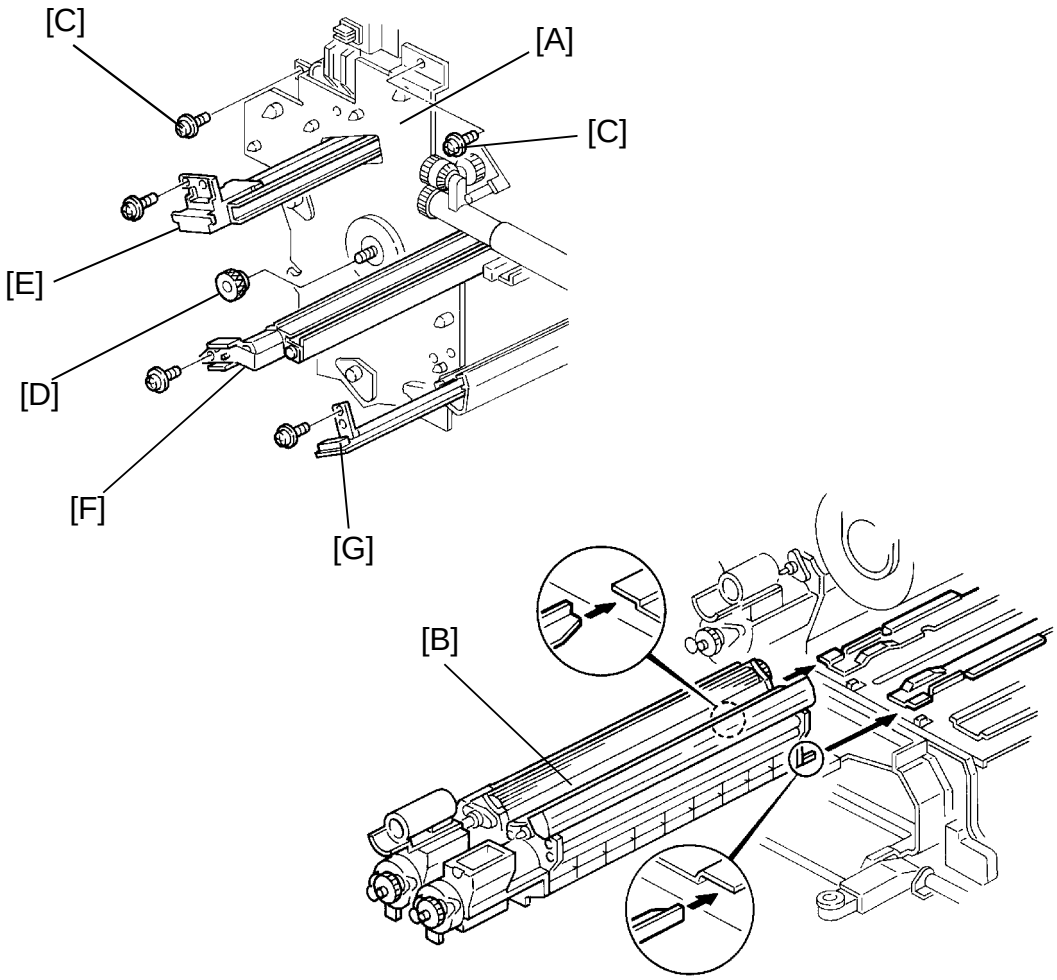
20. Remove the OPC drum protective sheet [A].

21. Loosen then move the knob [B]. (Move the knob from [C] to [D].)
    - [C] position = No pressure applied
    - [D] position = Pressure being applied

22. Tighten the knob [B] at the lower position [D].

23. While pressing up the latch [E] to apply the cleaning blade pressure, rotate the OPC drum counterclockwise 3 times to ensure the setting powder is evenly applied, as shown.

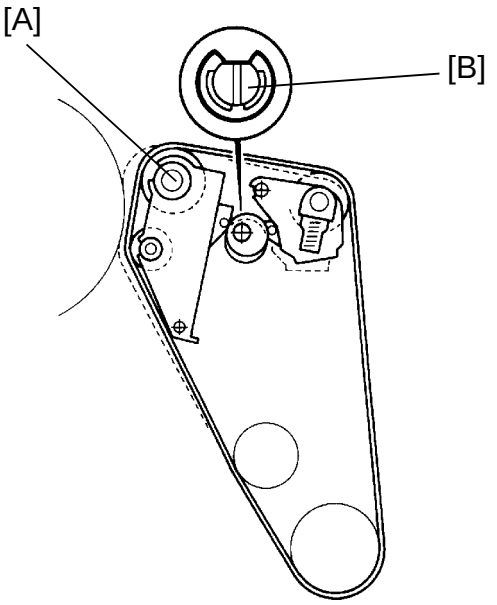
    NOTE: Hold only the edge of the OPC drum to rotate it (within 1 cm from the end).



24. Reinstall the following units or parts in the machine as follows.
    1) Slide in the drum unit and secure it to the shaft with the knob screw.
    2) Set the drum stay [A] in position and secure the drum unit (2 screws).
    3) Remove the drum stay [A] and reinstall the quenching lamp, toner collection tube and development units.

    NOTE: When reinstalling the magenta/yellow development unit [B], make sure that the bottom plate fits the rails as shown.

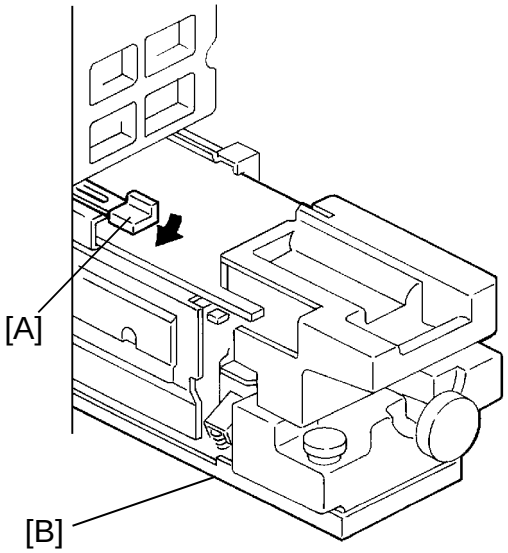
    4) Set the drum stay by securing the 2 screws [C] then the knob [D].
    5) Reinstall the charge corona unit [E], PCC [F], and the ID sensor board [G] (1 screw each).

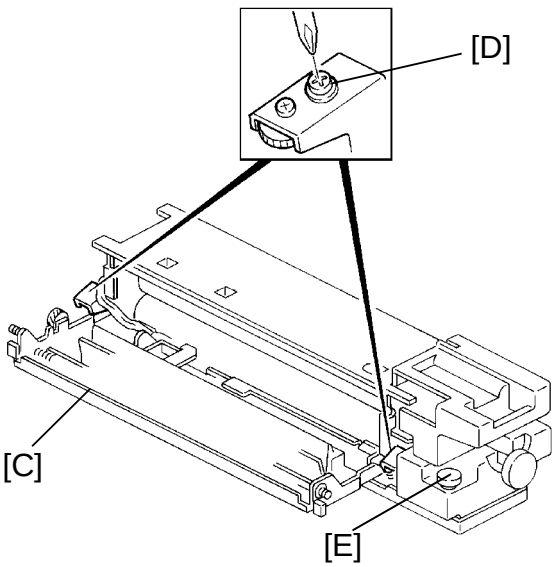


25. Confirm the belt bias roller [A] is in the release position (most inner position) as shown. If not, turn the shaft [B] with a flat head screw drive until the belt bias roller comes in the release position.

    NOTE: If the belt bias roller is not in the release position, it will touch the OPC drum and damage it.

26. Re-install the following units or parts in the following order.
    1) Transfer belt unit.
    2) Transfer belt cleaning unit
    3) Transfer belt stay (5 screws)
    4) Three connectors (6P white, 3P red, 3P white)
    5) Toner collection duct (1 hook)



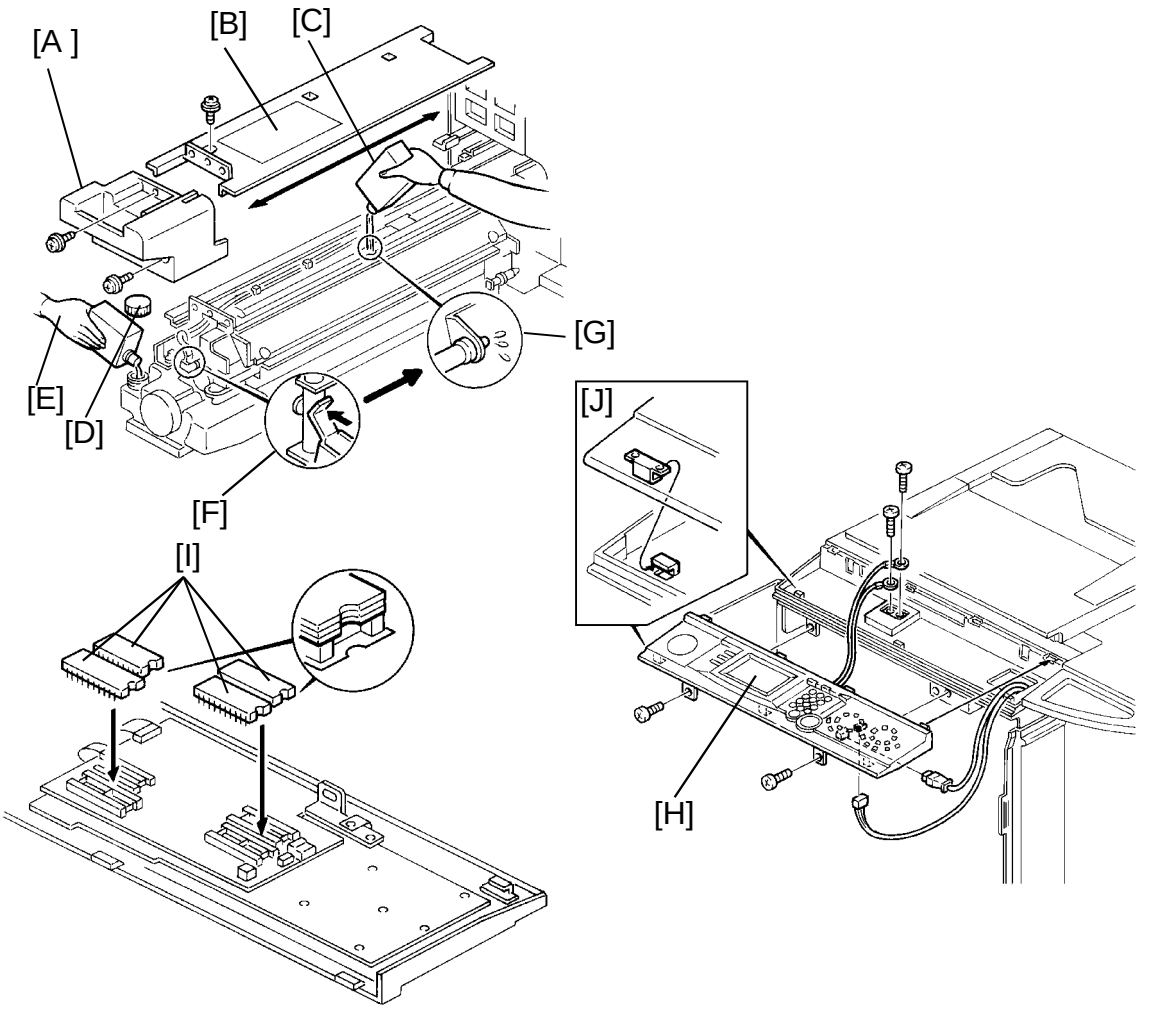


27. While releasing the lever [A], pull out the fusing unit [B].

28. Open the exit unit [C] (2 "D4" release levers).

29. Loosen the 2 black screws [D] until it moves freely so that the fusing pressure is being applied.

    NOTE: Do not turn the pressure adjustment screws which are located just beside the screws [D].



30. Remove the fusing handle cover [A] (2 screws) and the fusing top cover [B] (1screws).

31. Prime the oil supply pad with silicone oil [C].

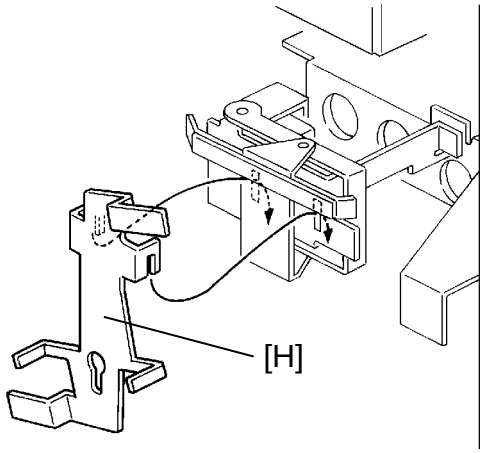
32. Remove the oil cap [D] and fill the tank with silicone oil to its max level [E].

33. Manually operate the oil pump lever [F] and confirm the proper operation of the silicon oil supply system [G].

34. Reset the covers, the exit unit, oil cap and the fusing unit.

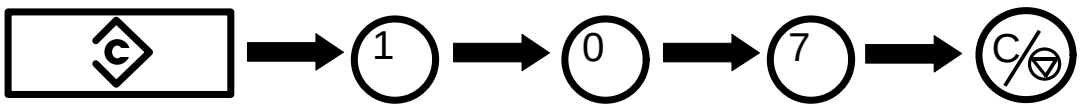
35. For **-26 and -27** machines, perform the following language ROM installation procedures. For **-22** machine, perform if replacement is needed.
    1) Remove the operation panel [H] (4 screws and 2 connectors).
    2) Install the requested language roms [I].
    3) Reinstall the operation panel making sure that the panel is properly hooked in [J].

36. Locate the switch actuator [H] inside the right door and actuate the front safety switch.

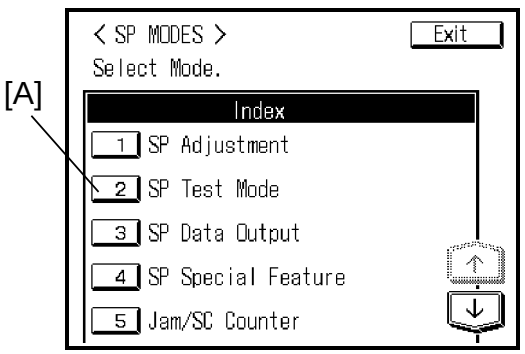


37. Plug in the power cord and turn on the main switch.

38. Enter SP mode as follows.
    1) Press the clear modes key.
    2) Enter "107" with number keys.
    3) Press the clear/stop keys for more than 3 seconds.

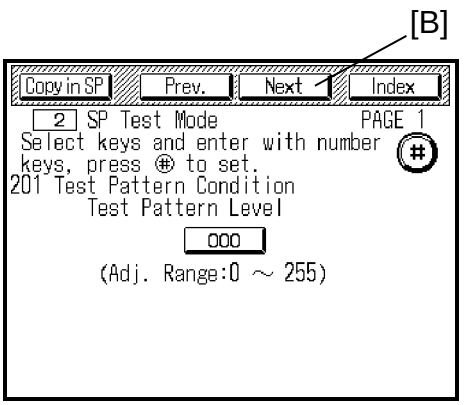


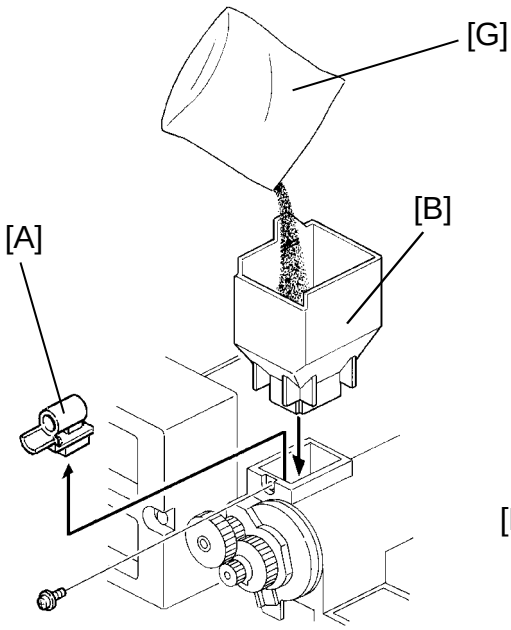
39. Touch the SP Test Mode key [A].

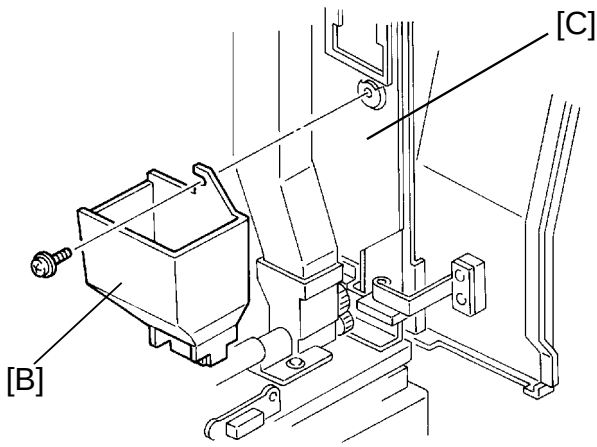


40. Touch the Next key [B] to open page 7.

    NOTE: Wait until the development unit drive stops then start the step 41.







41. Remove the black toner supply receptacle [A] (1 screw).

    NOTE: Refer to the toner tank lid for the color of the development unit.

42. Remove the developer supply funnel [B] from the bracket [C] and clean the inner surface.

43. Set the developer supply funnel on the black development section as shown.

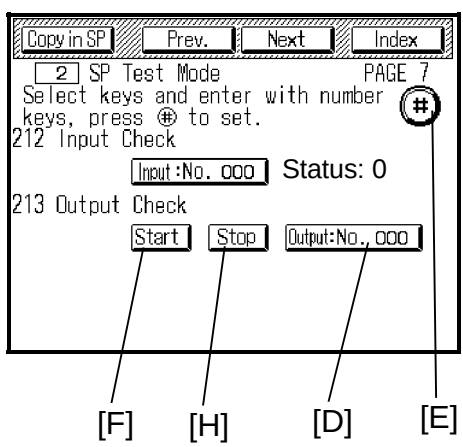
44. Touch the key [D], to enter the output mode.

45. Enter "30" by using the number keys then touch the enter key [E], to select test mode #30 "black development drive motor ON".

46. Touch the Start key [F].

47. Shake a pack of black developer [G] 20 times then pour them in.

48. 1 minute after pouring the developer, touch the stop key [H].



    NOTE: Do not touch the stop key within 1 minute, otherwise, the developer will not be evenly distributed in the development unit.

49. Remove the developer supply funnel, then install the toner supply receptacle.

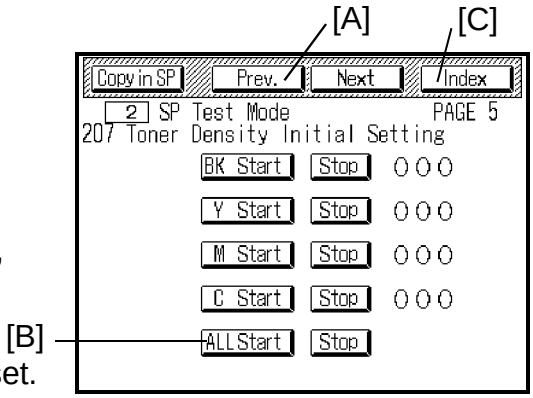
50. Install the cyan, magenta and yellow developer in the same manner as black developer installation (step #40 to #49).

    NOTE: To select the "color development drive motor ON" mode, enter "31" for color instead of 30 for black (refer to step #45).

51. Return the developer supply funnel to the original position.

52. Touch the Previous key [A] to open page 5.

53. Perform the developer initial setting as follows.
    1) Confirm if the main charge corona, PCC, ID sensor boards are set correctly (1 screw each).
    2) Confirm that the toner tank is not set.

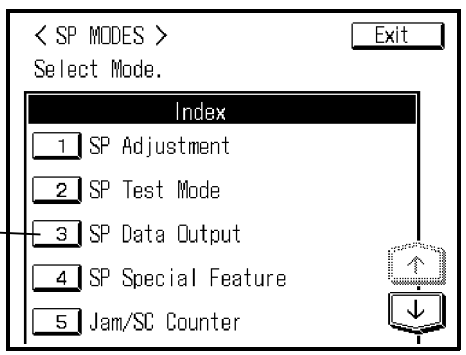


    NOTE: If the toner tank is set, toner is supplied during the developer initial setting and the machine cannot figure out the proper toner concentration of the new developer.

    3) Touch the All Start key [B] to start the developer initial setting. After the adjustment is completed, the machine stops automatically.

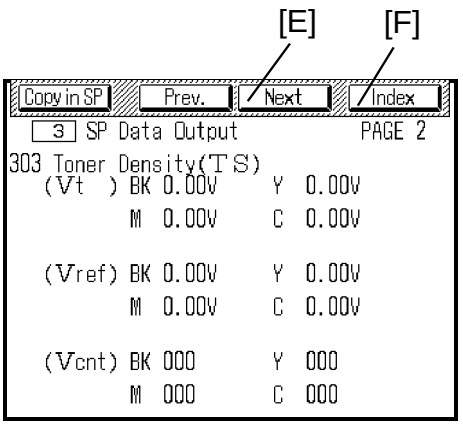
54. Touch the Index key [C].

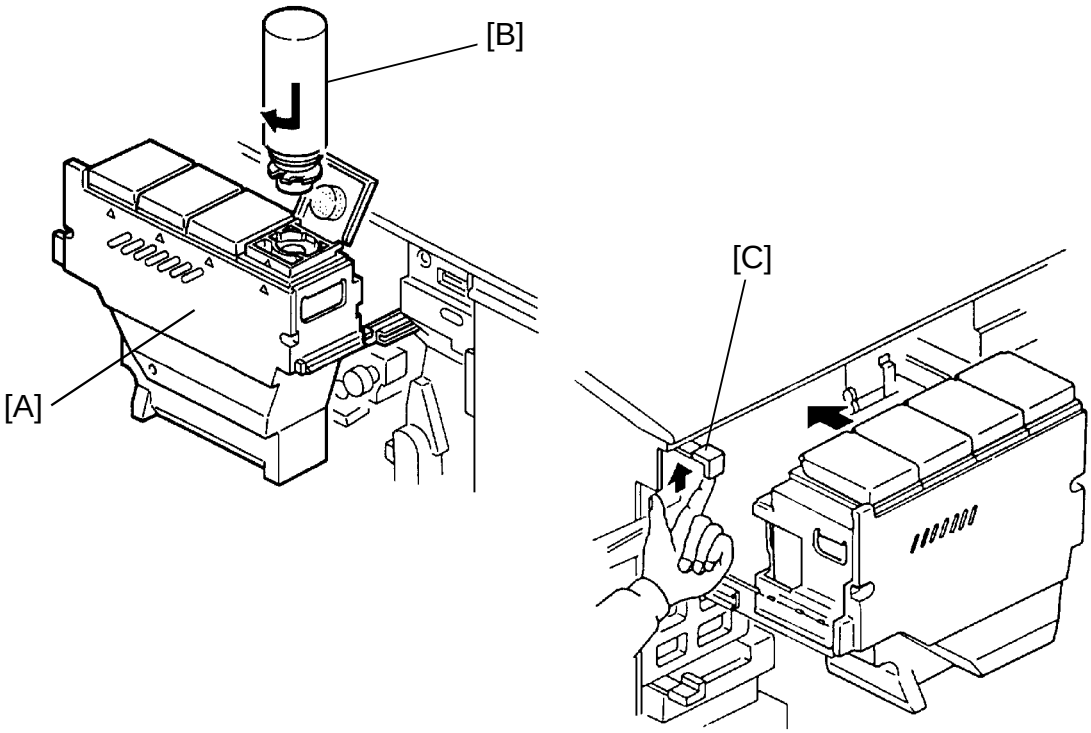
55. Touch the SP Data Output key [D].



56. Touch the Next key [E] to open page 2.

57. Confirm whether if the VT has the same values as Vref for all colors (Bk, Y, M, C). If not, touch the Index key [F] then return to the test mode page 5 to perform the developer initial setting (step 53) again.





58. Set the toner tank [A] on the Accuride rails (2 screws).

59. Add toner [B] for all colors.

NOTE:
- Read the instructions on the box for how to add toner.
- Before reinstalling the toner tank, wait at least 30 seconds to let the toner settle.

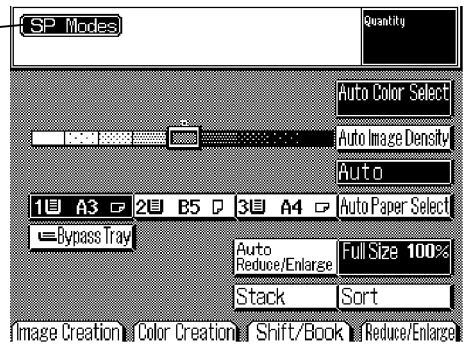
60. Slowly push the toner tank [A] back in until it hits the green lever [C]. Then lift the green lever [C] and push the unit until it locks.

61. Close the front doors and set the copy tray.

62. Load A3 or 11" x 17" paper in the 3rd paper tray.

63. Place the C-4 test chart on the exposure glass.

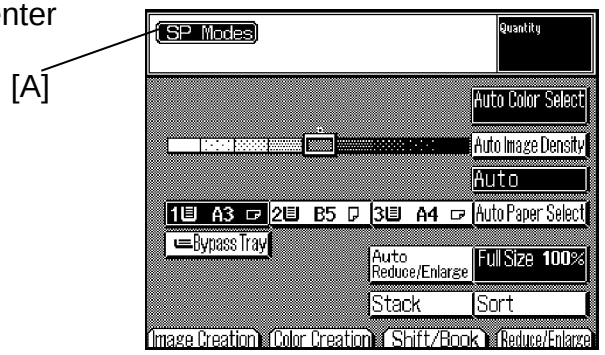
64. Touch the Copy In SP key [D] and make 30 full color copies using A3 or 11" x 17" size paper. (60 full color copies using A4 or 11" x 8 1/2" is also acceptable.)



65. **Wait 5 minutes** to ensure that no residual voltage remains on the OPC drum.

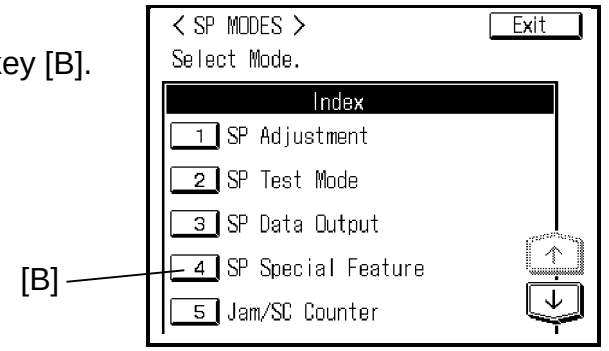
    NOTE: The process control self check (step 67) must be performed when there is no residual voltage on the OPC drum.

66. Touch the SP Mode key [A] to enter the SP mode.



67. Touch the Index key.

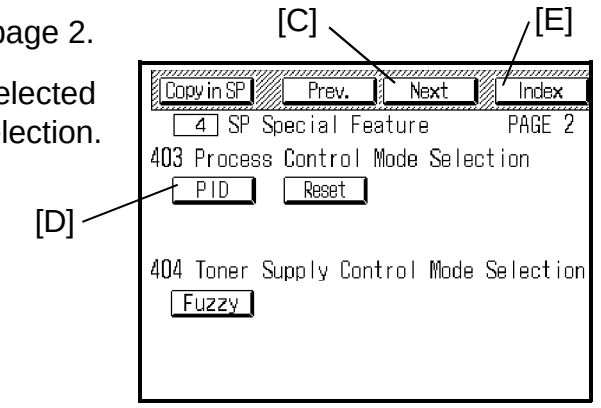
68. Touch the SP Special Feature key [B].



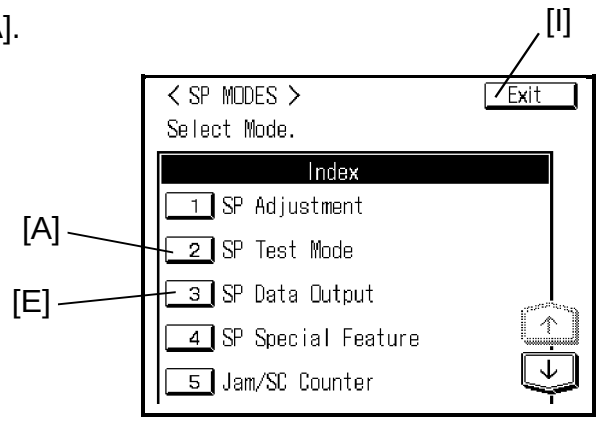
69. Touch the Next key [C] to open page 2.

70. Confirm that the PID key [D] is selected for the Process Control Mode Selection. If not, touch the PID key [D].

71. Touch the Index key [E].



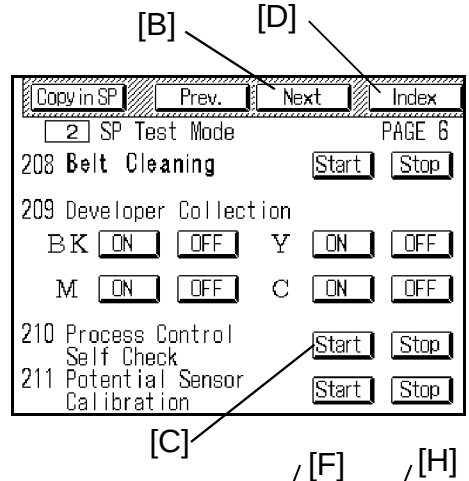
72. Touch the SP Test Mode key [A].



73. Touch the Next key [B] to open page 6.

74. Touch the Process Control Self Check Start key [C]. After the self check is completed, the machine stops automatically.

75. Touch the Index key [D].

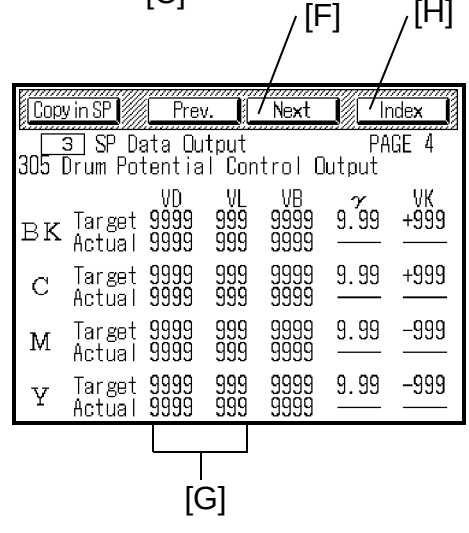


76. Touch the SP Data Output key [E].

77. Touch the Next key [F] and open page 4.

78. Check the VD and VL [G] for each color. If the difference between 'Target' and 'Actual' for any color exceeds 5, wait 5 minutes and go back to step 72 and perform the process control self check again.

79. Touch the Index key [H].



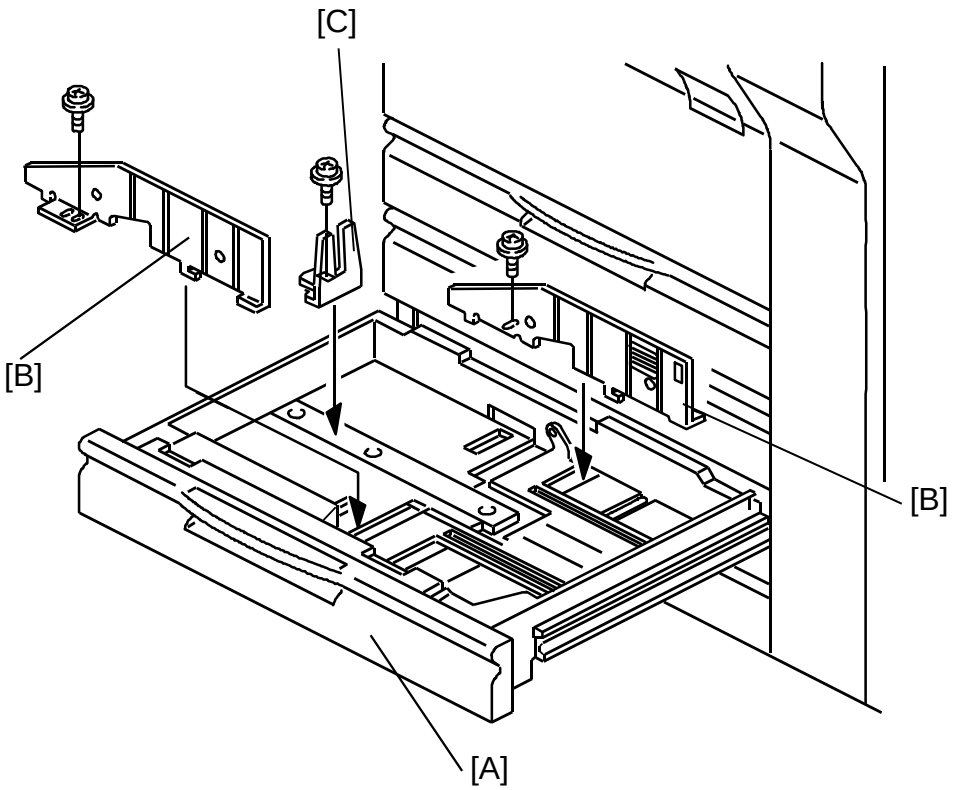
80. Touch the Exit key [I].

81. Turn off the main switch and place the accessory switch actuator to it's original position.

82. Reinstall the right inner cover (3 screws) and turn on the main switch.

83. Check the copy quality and adjust if necessary. (Refer to section 5.)

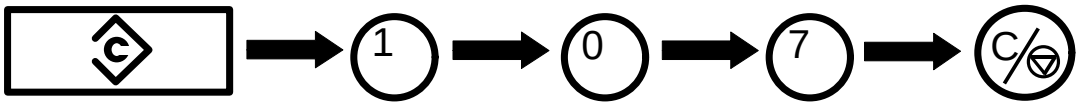
2.4 PAPER SIZE CHANGE



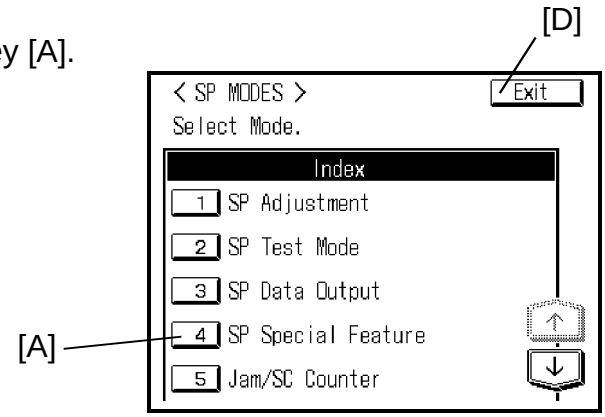
At the customer's request, change the paper size of 2nd and 3rd feed trays as follows.

1. Draw out the paper feed tray [A].
2. Change the position of the front and the rear side fences [B] (1 screw each) and the end fence [C] (1 screw) according to the paper size.

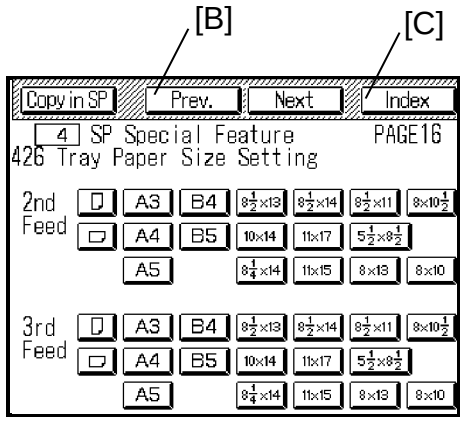
3. Enter SP Mode as follows:
   1) Press the clear modes key.
   2) Enter "107".
   3) Press the clear/stop key more than 3 seconds.



4. Touch the SP special feature key [A].



5. Touch the Previous key [B] to select the paper tray size setting mode (page 16) and touch appropriate paper size key and direction key of the 2nd or the 3rd feed station.

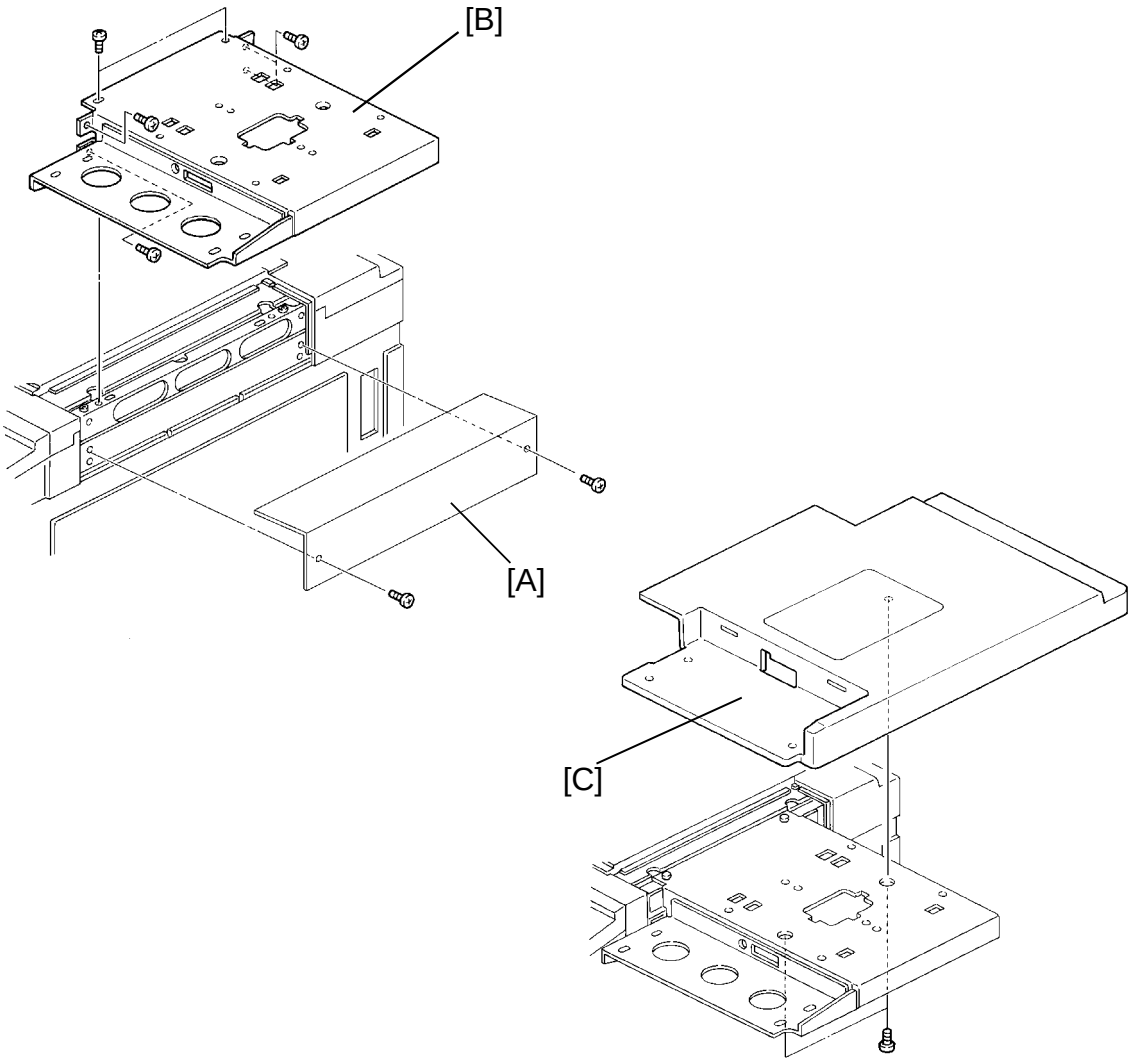


6. Touch the Index key [C].

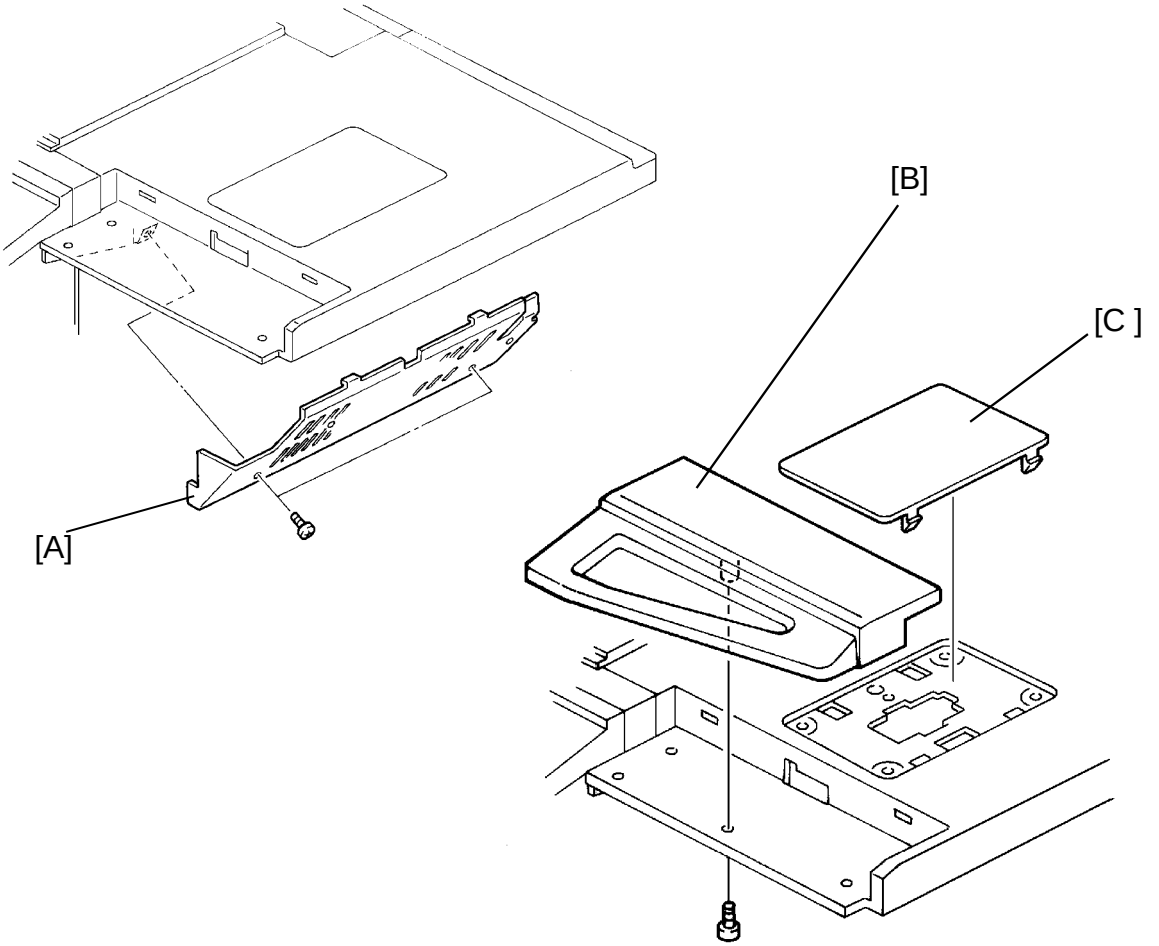
7. Touch the Quit key [D] to exit SP mode.

8. Check copy quality and machine operation.

2.5 OPTIONAL HOLDER (A702) INSTALLATION



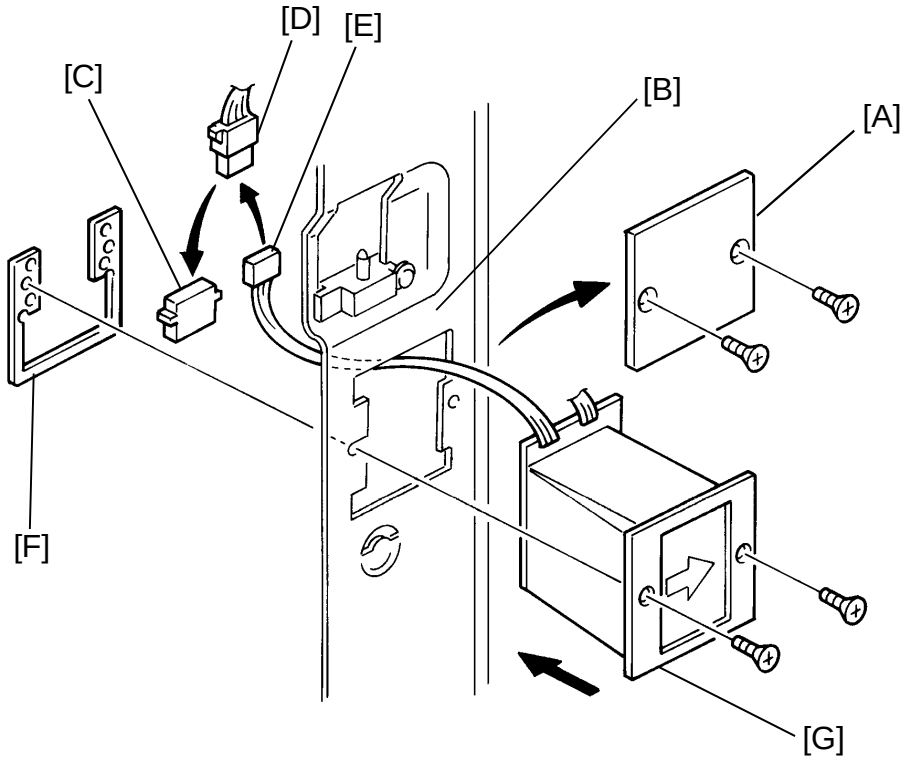
1. Remove the right upper cover [A] (2 screws).
2. Install the holder base bracket [B] (6 screws).
3. Install the holder cover [C] (2 screws).



4. Install the lower cover [A] (2 truss screws).
5. Install the front cover [B] (1 screws).
6. Install the top cover [C].

NOTE: a) If installing the display editor, step 5 is not necessary.
b) If installing the film projector unit, step 6 is not necessary.

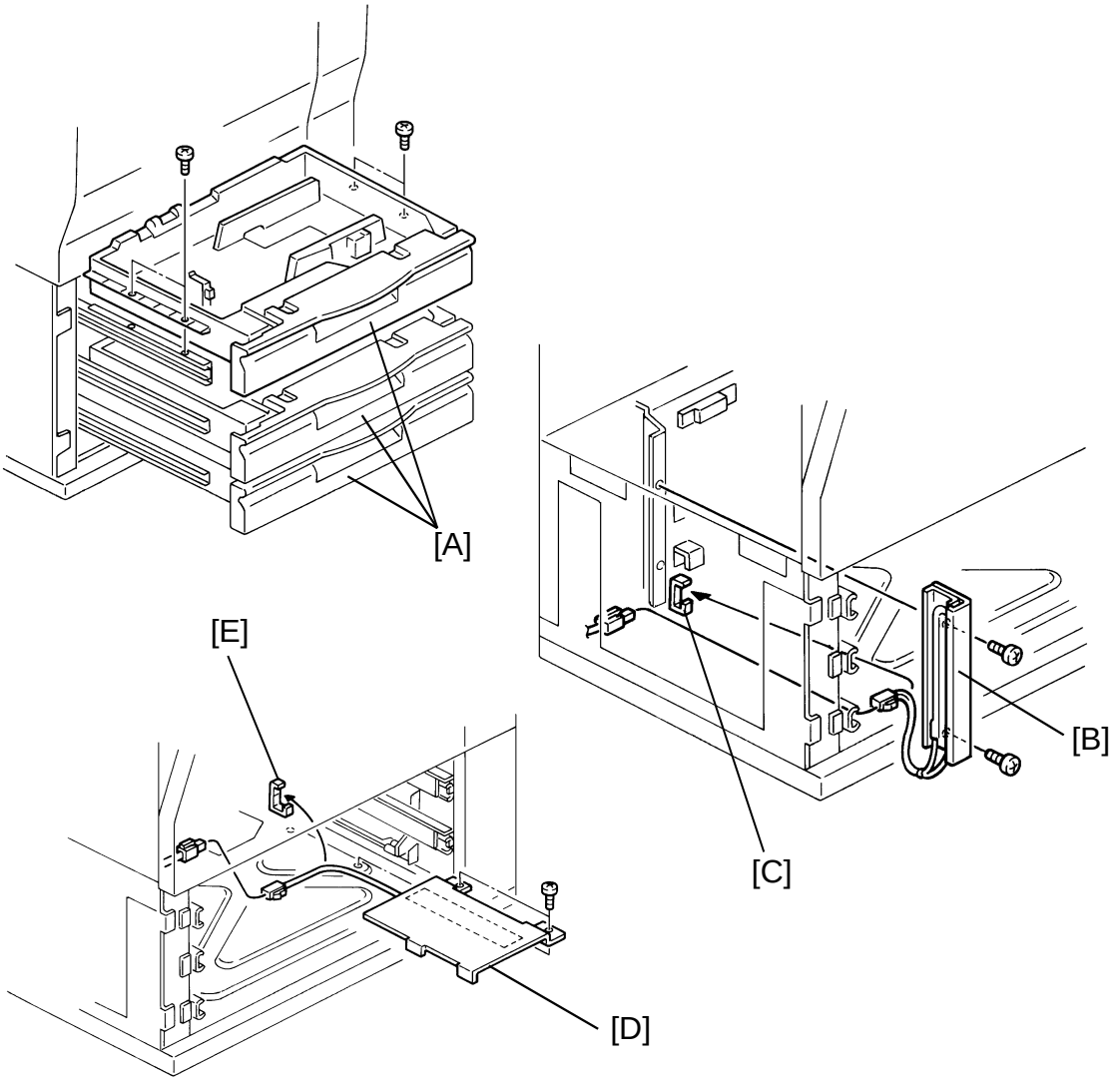
2.6 KEY COUNTER INSTALLATION



1. Remove the following parts. (Refer to Exterior And Inner Covers section.)
   - Upper rear cover
   - Right inner cover
   - Upper right cover
2. Remove the key counter cover [A] (2 screws) from the key counter holder bracket [B].
3. Disconnect the short-circuit connector [C] from the key counter connector [D].
4. Couple the connector [D] with the key counter connector [E].
5. Hold the fixing plate [F] on the inside of the key counter holder bracket and insert the key counter holder [G].
6. Align the holes in the fixing plate with the mounting holes of the key counter holder and secure the key counter holder (2 screws).

   NOTE: The fixing plate has three different hole sizes. Use the holes that match those on the key counter holder that you are installing.
7. Reinstall all the covers and check the key counter operation.

2.7 UPPER AND LOWER HEATER INSTALLATION (OPTIONS)



NOTE: Both heaters are available as service parts.

1. Assemble the heater to the bracket (2 M4 x 10 screws).
2. Pull out and remove all the paper feed trays [A] (4 screws each).
3. Install the upper tray heater assembly [B] (2 M4 x 8 screws).
4. Mount the harness to the clamp [C] and connect as shown.
5. Install the lower tray heater assembly [D] (2 M4 x 8 screws).
6. Mount the harness to the clamp [E] and connect as shown.
7. Reinstall the paper feed trays [A].

SECTION 4

SERVICE TABLES

1. SERVICE REMARKS

1.1 GENERAL CAUTION

Do not turn off the main switch intentionally while any of the electrical component is active.
Doing so might cause damage to the units such as transfer belt, transfer roller, development, etc. when they are pulled in or out from the copier.

1.2 DRUM

The organic photoconductor (OPC) drum is comparatively more sensitive to light and ammonia gas than a selenium drum. Follow the cautions below when handling an OPC drum.

1. Never expose the drum to direct sunlight.
2. Never expose the drum to direct light of more than 1,000 Lux for more than a minute.
3. Never touch the drum surface with bare hands. When the drum surface is touched with a finger or becomes dirty, wipe with a dry cloth or clean with wet cotton. Wipe with a dry cloth after cleaning with wet cotton.
4. Never use alcohol to clean the drum; alcohol dissolves the drum surface.
5. Store the drum in a cool, dry place away from heat.
6. Take care not to scratch the drum as the drum layer is thin and is easily damaged.
7. Never expose the drum to corrosive gases such as ammonia gas.
8. Always keep the drum in the protective sheet when keeping the drum unit, or the drum itself, out of the copier. Doing so avoids exposing it to bright light or direct sunlight. This will protect the drum from light fatigue.
9. Before pulling out the drum unit, place a sheet of paper under the drum to catch any spilt toner.
10. Dispose of used drums according to local regulations.
11. When removing the drum from the drum unit, release the pressure of the drum cleaning blade by moving the knob.

12. When installing a **new** drum to the drum unit, the following must be performed.
    a) Remove the protective sheet after securing the new drum to the drum unit.
    b) Apply setting powder to the entire surface. Manually apply the cleaning blade pressure to the drum and rotate it counterclockwise 3 times.
    c) Apply pressure of the drum cleaning blade by moving the knob.

13. When installing the drum unit, the following procedures must be performed in the order written.
    1) Tighten the drum knob.
    2) Secure only half way the 2 screws fixing the drum unit.
    3) Tighten the 2 screws fixing the drum stay.
    4) Tighten the drum stay knob.
    5) Fully tighten the 2 screws fixing the drum unit.

14. Process Control Self Check (SP Test Mode P-6, No 210) must be performed when a new drum is installed.

1.3 TRANSFER BELT UNIT

1. Replace the transfer belt at every PM cycle (40K scan) to avoid bad effects on the OPC drum.
2. Never touch the transfer belt surface with bare hands. When the transfer belt surface is touched with a finger or becomes dirty, wipe off the toner with dry cloth then clean the surface with alcohol.
3. Always make the transfer belt unit stand by using the stands at the rear side when keeping the unit out of the copier.
4. Take care not to scratch the transfer belt as the surface is easily damaged.
5. Before installing the new transfer belt, clean all the rollers and shafts with alcohol to prevent belt slipping.

6. When reinstalling, the following should be performed to avoid damage to the transfer belt.
   a) Confirm that the securing screw shaft is screwed down to the marked line.
   b) Manually turn the rollers and check that the new transfer belt is not running over any of the rollers.
   c) Always insert the transfer belt unit before inserting the transfer belt cleaning unit.
   d) Confirm that the belt bias roller is in the release position.

7. Belt Cleaning (SP Test Mode P-6, No. 208) must be performed when a new transfer belt is installed.

1.4 SCANNER UNIT

1. When installing the exposure glass, make sure that the white reference plate is facing down.
2. Clean the exposure glass with alcohol or glass cleaner to reduce the amount of static electricity on the glass surface.
3. Use cotton pad with water or a blower brush to clean the mirrors and lens.
4. Do not bend or crease the exposure lamp flat cable.
5. Do not disassemble the lens unit. Doing so will throw the lens and the copy image out of focus.
6. Do not turn any of the CCD positioning screws. Doing so will throw out the position of the CCD and the RGB signal's grey balance.

1.5 LASER UNIT

1. Do not loosen the screws securing the LD drive board to the laser diode casing. Doing so would throw the LD unit out of adjustment.
2. Do not turn the volume on the LD unit as they are adjusted in the factory.
3. The polygon mirror and Fθ lenses are very sensitive to dust. Never open the optical housing unit.
4. Do not touch the polygon mirror's reflecting surface with bare hands.

1.6 CHARGE CORONA

1. Clean the charge corona wire with a dry cloth. Do not use sandpaper or a solvent.
2. Clean the charge corona casing with wet cotton and dry cloth.
3. Clean the end blocks with a blower brush first to remove toner and paper dust. Then clean it with dry cloth if any toner still remains on it.
4. Do not touch the corona wires with oily bare hands. oil stains may cause uneven image density on copies.
5. Make sure that there is no foreign material (iron filings, etc.) on the casing.
6. When installing new corona wires, do not bend or scratch the wire surface to avoid any uneven charge. Also be sure that the corona wires are correctly positioned in the grooves of the end blocks.
7. Clean the charge grid plate with a blower brush, water, then with a dry cloth. When doing so, be careful not to damage the grids by letting them catch fibers.
8. Do not touch the charge grid plate with oily bare hands. Also, do not bend the charge grid plate or make any dent on it. Doing so may cause uneven charge.
9. After servicing the corona unit, perform the process control self check.

1.7 DEVELOPMENT

1. Be careful not to nick or scratch the development rollers.
2. Place the development units on a sheet of paper after removing it from the copier.
3. Never disassemble the development roller assembly. The position of the doctor plate is set with a special tool and instrument at factory to ensure the proper gap between the doctor blade and the development roller.
4. Clean the drive gears after removing used developer.
5. Dispose of used developer according to local regulations.
6. When removing or installing the development unit, be careful not to damage the drum surface by the entrance seal on the development unit.
7. Never load different types of developer and toner into the development unit. Doing so will cause poor copy image and toner scattering.

8. After collecting the black developer, make sure to shift back the magnet release lever to ensure proper developer flow in the unit.
9. To maintain good color copy quality, the developer replacement should be performed for all colors at the same time so that all the developers have similar characteristics.
10. When installing new developer, the following should be performed to avoid damage to the copier.
    a) The new developer needs more than 1 minute to get evenly distributed in the development unit. Do not stop the distributing procedure within 1 minute.
    b) When performing the developer initial setting, make sure that the charge corona, PCC and the ID sensor board are set correctly. If it is not, proper initial setting can not be performed.
    c) When performing the developer initial setting, make sure that the toner tank is **not** set. If the toner tank is set, toner will be supplied during the developer initial setting and the machine can not figure out the proper toner concentration of the new developer.
    d) After taking 30 full color copies, wait 5 minutes to ensure that no residual voltage remains on the OPC drum. The Process Control Self Check (SP Test Mode P-6, no. 210) will not be performed properly unless there is no residual voltage remaining on the OPC drum.
11. When using the vacuum cleaner to clean the development unit casing, always ground the casing with your fingers to avoid damaging the toner density sensor from static electricity.

1.8 DRUM CLEANING

1. When installing a new cleaning blade, apply setting powder to the entire surface of the drum. Manually apply the cleaning blade pressure to the drum and rotate it counterclockwise 3 times.
2. Do not touch the cleaning brush with oily bare hands.
3. Clean the PCC wire with dry cloth. Do not use sandpaper or a solvent.
4. Clean the PCC casing with damp or dry cloth.
5. Clean the PCC end blocks with dry cloth.

1.9 TRANSFER BELT CLEANING

1. Do not touch the lubricant brush with oily bare hands.
2. When installing a new cleaning blade, apply setting powder along the edge of the blade.
3. The lubricant bar should be replaced if damaged or worn (holes, dents, or less than 0.5 mm overlap of the brush over the bar).
4. The lubricant brush and the lubricant bar should be replaced as a set.
5. When inserting the unit, both the solenoid's plungers must be in (no contact position with the transfer belt). If it is not, the transfer belt will be damaged.

1.10 FUSING UNIT

1. When replacing the hot roller at every 40K scans, lubricate the inner and outer surface of the heat isolating bushings with Barrierta L55/2.
2. The fusing drive gears should be lubricated with Mobil Temp. 1 or 78 every 80K scans.
3. After installing the upper fusing thermistor, make sure that it's in contact with the hot roller and movable.
4. After installing the lower fusing thermistor, make sure that it is in contact with the pressure roller.
5. Be careful not to damage the edges of the hot roller strippers or their tension springs.
6. Do not touch the fusing lamps and rollers with bare hands.
7. Make sure that the fusing lamps are positioned correctly and that they do not touch the inner surface of the rollers.
8. After replacing the oil blade and oil supply pad, prime the entire length of the blade with silicon oil.
9. Do not touch the screws for the pressure springs. These are adjusted at the factory to maintain the proper nip band width.

1.11 PAPER FEED

1. Do not touch the surface of the pick-up, feed, and separation rollers.
2. The paper size detector bracket installed in the 1st paper feed tray must be positioned correctly to align with the actual paper size to avoid paper misfeeds.

1.12 TRANSFER ROLLER UNIT

1. When inserting the transfer roller unit, make sure that the unit's drive gear does not damage the transfer belt located above the unit.

1.13 FILTER

1. All the dust filters and ozone filters should be replaced at every PM cycle (40K scans).
2. When inserting the new development filter, the side with the net should face towards the ozone filter.

1.14 USED TONER

1. The used toner tank should be emptied at every PM cycle, but we recommend confirming the amount of used toner in the tank at every EM.
2. When reinstalling the used toner tank, make sure that the toner overflow sensor connector is inserted firmly.
3. Dispose of used toner according to local regulations. Never throw into an open flame, for toner dust may ignite when exposed to open flame.

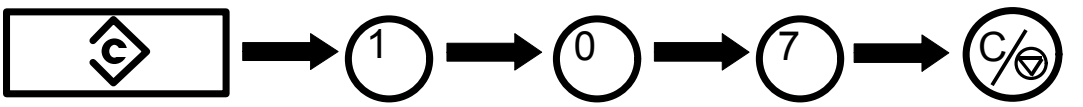
2. SERVICE PROGRAM MODE

2.1 SERVICE PROGRAM MODE OPERATION

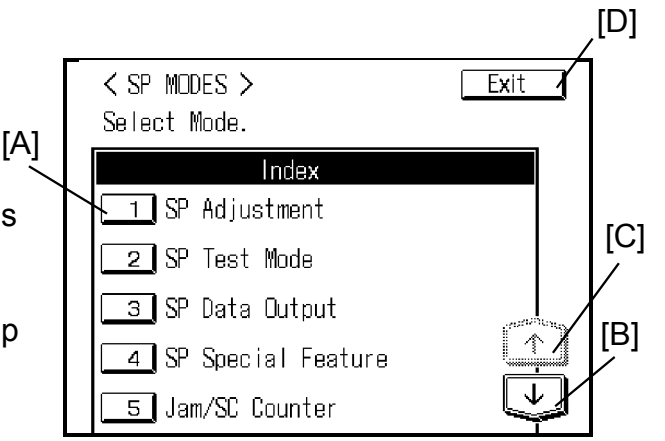
The service program (SP) mode is used to check electrical data, change modes, and adjust values.

2.1.1 Service Program Access Procedure

1. Press the clear modes key.
2. Enter "107".
3. Press the clear/stop key for more than 3 seconds until the service program index menu appears on the touch panel display.



4. Touch a number [A] on the display to access the desired function.
   This copier has 7 service program modes
   Only 5 service program modes are visible on the touch panel display at one time.
   Use the down key [B] or the up key [C] to see other service program mode menus.

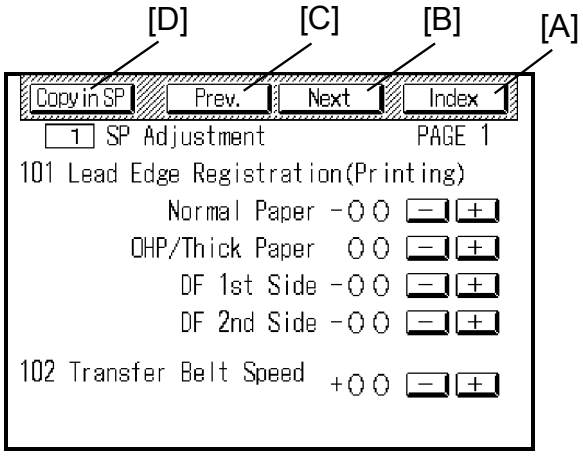


2.1.2 To Exit SP Mode

1. Touch the Exit key [D].

2.1.3 To Return to the Index Menu

1. Return to the index menu by touching Index [A] on the display.

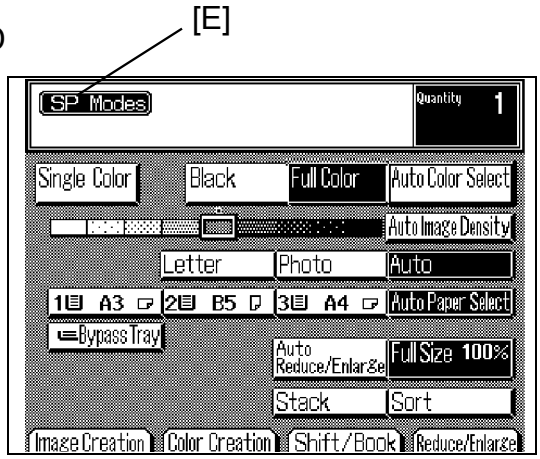


2.1.4 Change the Menu Screen

1. To move to the next page, touch Next [B].
2. To move to the previous page, touch Prev. [C].

2.1.5 Access to "Copy in SP" Mode

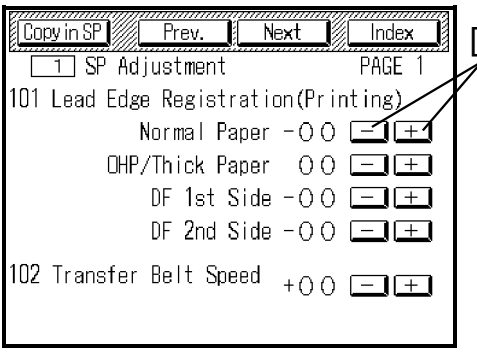
1. Touch Copy in SP [D] to access "Copy in SP" mode. LCD displays as shown at right.
2. Select the appropriate copy mode and make trial copies.
3. Return to the SP mode by pressing SP mode [E].



Service Tables

2.1.6 To Input Data

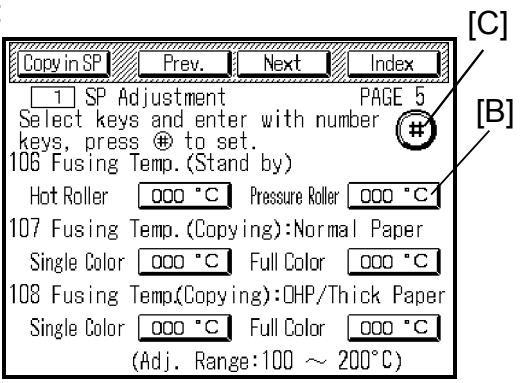
If there are [+] and [−] keys [A] on the display as shown, touch the [+] key or [−] key to change data. In this case, the default data is 00.



If there are key with number in it as shown:

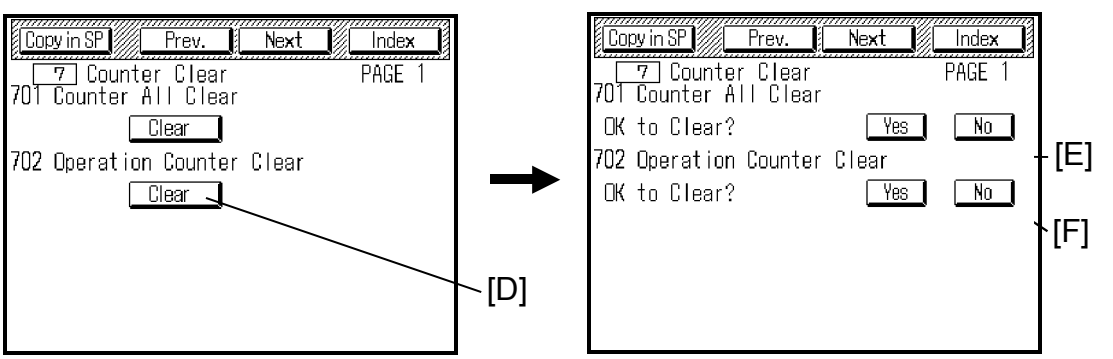
1) Touch the key [B], its color will change.
2) Input the data by using number keys.
3) Touch the enter key [C].

NOTE: If you forget to touch the enter key, the previous data remains.



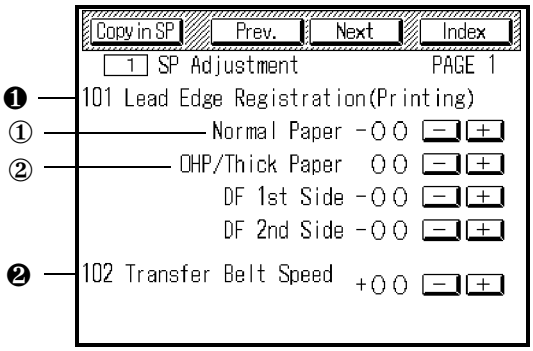
2.1.7 To Clear The Counter

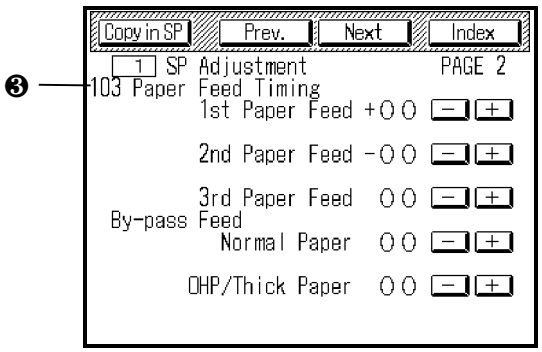
1. Touch the clear key [D].
2. If you are sure to clear, touch the [Yes] [E] .
   If you want to cancel to clear, touch [No] [F].

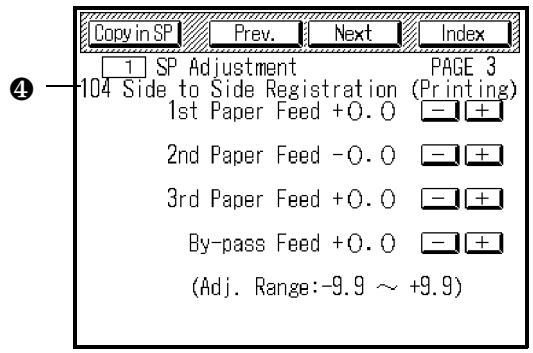


2.2 SERVICE PROGRAM MODE TABLE

2.2.1 SP ADJUSTMENT

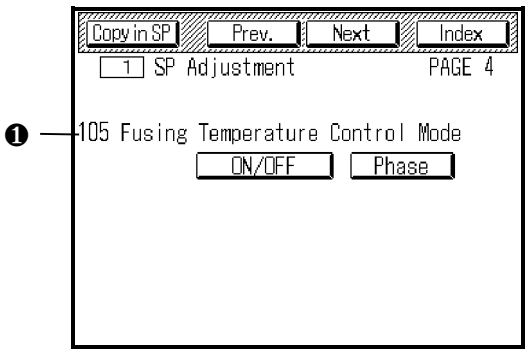


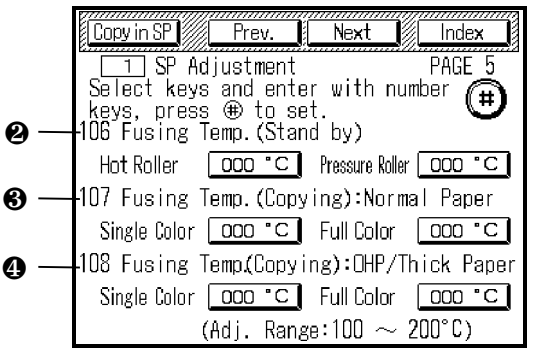


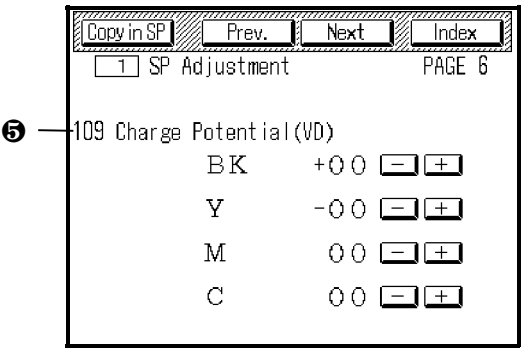


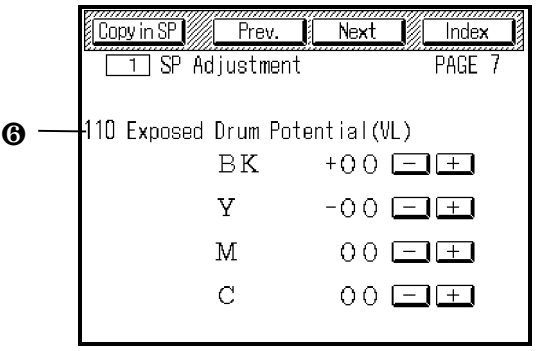
NOTE: Do not change the SP data for tinted table.

Item	Function	Note
❶	Shifts the vertical image position by changing the ON timing of the registration clutch. (0.5 mm/step) ① For normal paper mode (transfer belt speed: 180 mm/sec) ② For OHP/Thick paper mode (transfer belt speed: 90 mm/sec)	Evaluate the width of the blank area at the leading edge of the test pattern image (Use trimming area mode in test mode page 3) Adjustment standard: 0± 2 mm (2 ± 2 mm in Trimming area mode <SP #205>) See section 5 for the detail.
❷	Changes the transfer belt rotation speed. (0.19%/step)	Default: 2 Do not change the data in the field
❸	Changes the paper feed clutch on period for each paper feed stations to adjust paper buckle at registration roller. (0.1 mm/step)	For by-pass feed, there are adjustments for normal paper mode and for OHP/thick paper mode. Adjustable range: –9.9 ~ 9.9 mm
❹	Adjust the horizontal image position by changing the main scanning start position for each paper feed section. (0.1 mm/step)	Adjustable range: –9.9 ~ 9.9 mm

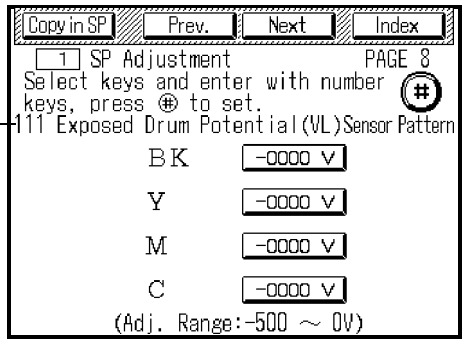




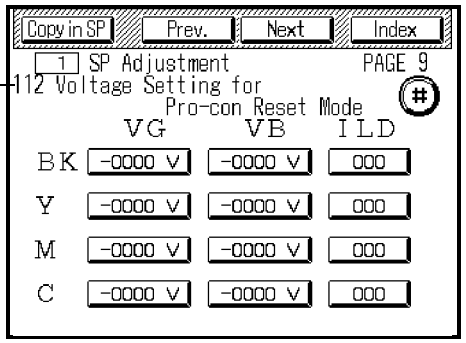




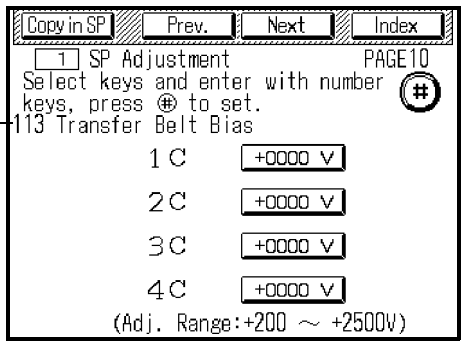
Item	Function	Note
❶	Selects the fusing temperature control mode	Default: ON/OFF control
❷	Adjust the target temperature of the hot roller and the pressure roller during stand by.	Default: hot roller: 170°C/pressure roller: 120°C Adjustable range: 100°C~ 200°C
❸	Adjust the target temperature of the hot roller during copying in normal paper mode	Default: single color mode: 150°C full color mode: 160°C Adjustable range: 100°C~ 200°C
❹	Adjust the target temperature of the hot roller during copying in OHP/Thick paper mode	Default: single color mode: 160°C full color mode: 160°C Adjustable range: 100°C~ 200°C
❺	Factory use only	Default: 0 Do not change the data in the field
❻	Factory use only	Default: 0 Do not change the data in the field



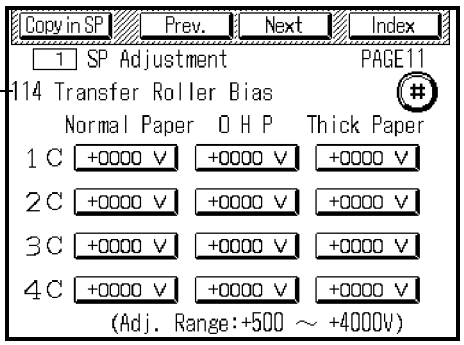
❶



❷



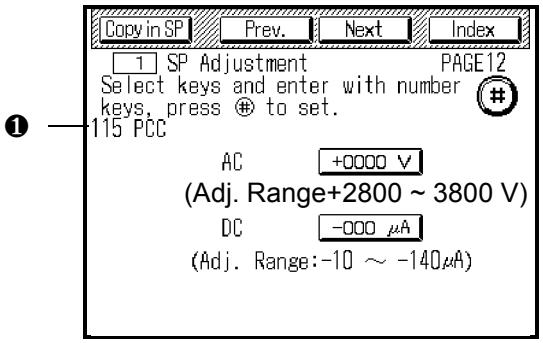
❸

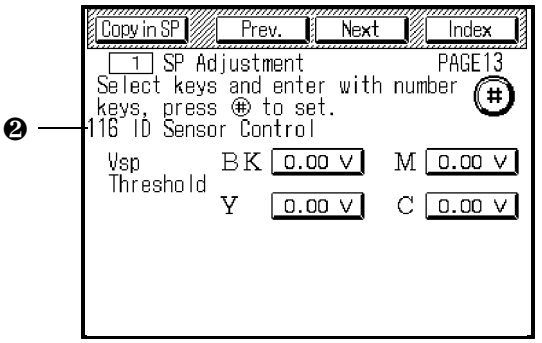


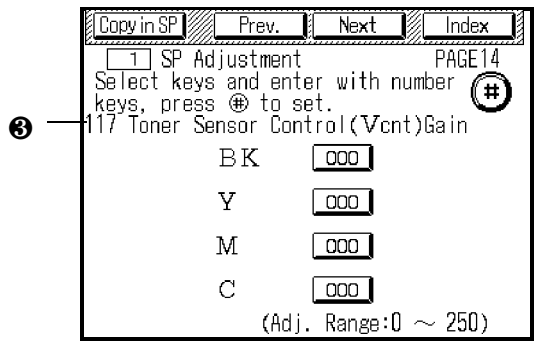
❹

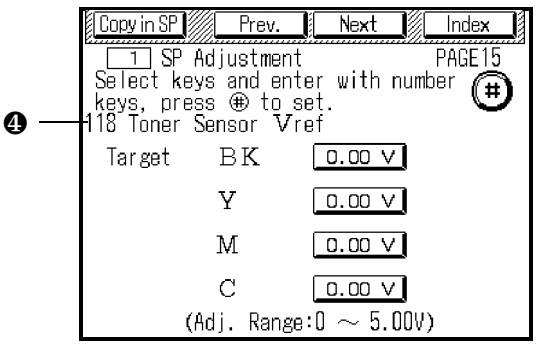
Service Tables

Item	Function	Note
❶	Factory use only	Do not change the data in the field Default: Bk: 450 V Y: 450 V M: 450 V C: 450 V
❷	Factory use only	Do not change the data in the field Default: VG: 600 V VB: 420 V ILD: 128
❸	Adjusts the transfer belt bias voltage for each transfer process. Touch the selected item, enter the data by using number keys, then touch the enter key.	Default: 1C: 1410 2C: 1490 3C: 1575 4C: 1660 Adjustable range: 200~2500 V
❹	Adjusts the transfer roller bias voltage for each transfer process 1C~4C and paper modes (Normal, OHP, Thick).	Adjustable range: 500~4000 V Default: Normal OHP Thick 1C: 940 1325 940 2C 1515 2095 1515 3C 1710 2530 1660 4C 1230 2045 1230

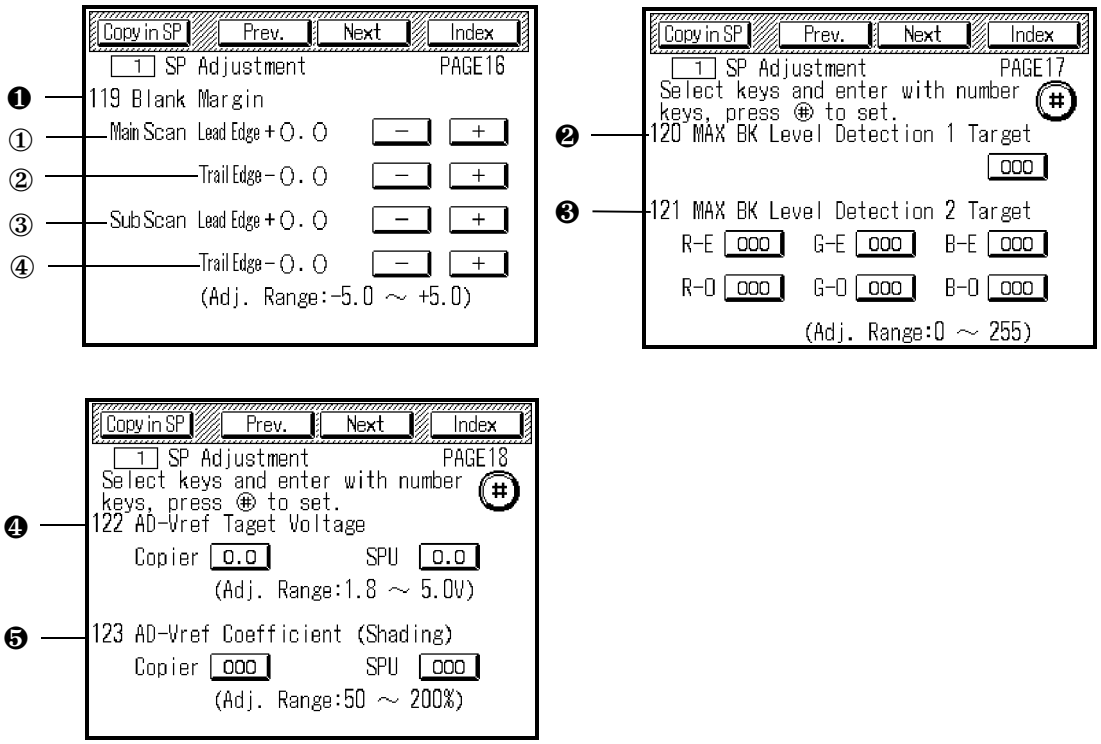




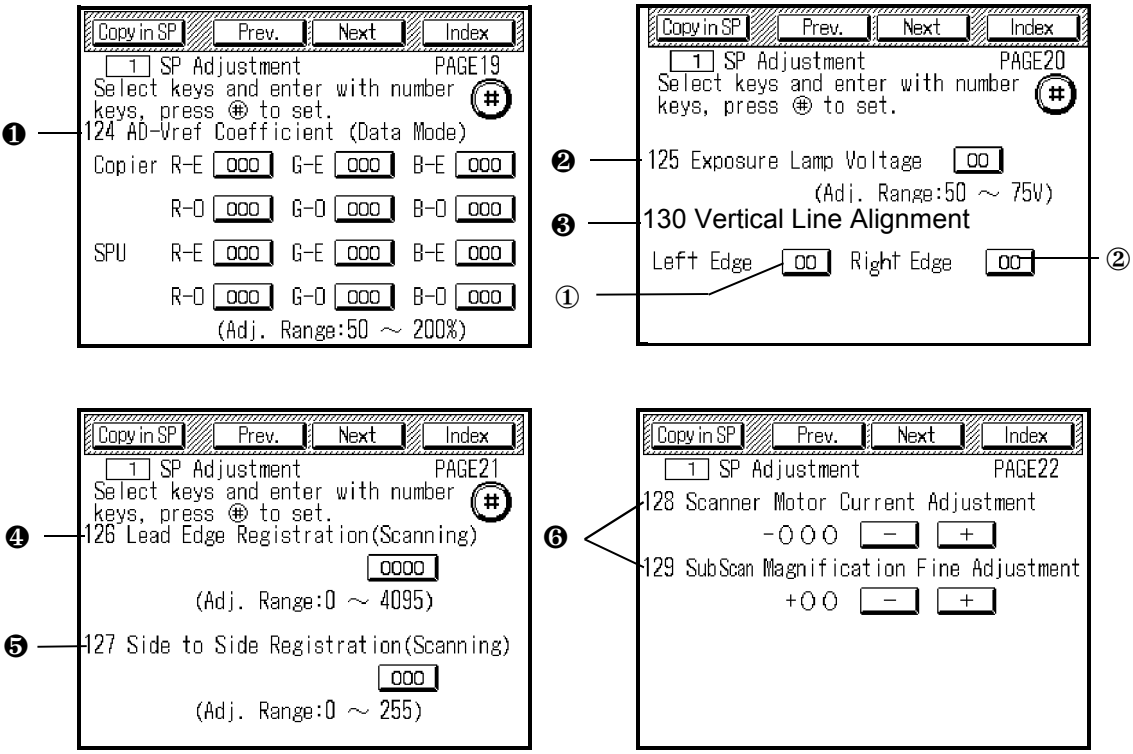




Item	Function	Note
❶	Selects the PCC ac (V) and dc (uA) output.	Default: AC: 3500 V DC: –33 μA Adjustable range: AC: 2800 ~ 3800 V DC: –10 ~ –140 μA
❷	Factory use only	Default: Bk: 0.7 Y: 1.8 M: 1.8 C:1.8 Do not change the data in the field.
❸	Manually change the TD sensor gain data (VCNT Gain)	Default: 180 (Bk, Y, M, C) Do not change the data in the field.
❹	Manually change the target voltage of the TD sensor output (VREF) during the developer initial setting.	Default:2.5V (Bk, Y, M, C) Adjustable range: 0 ~ 5.0 V Do not change the data in the field.

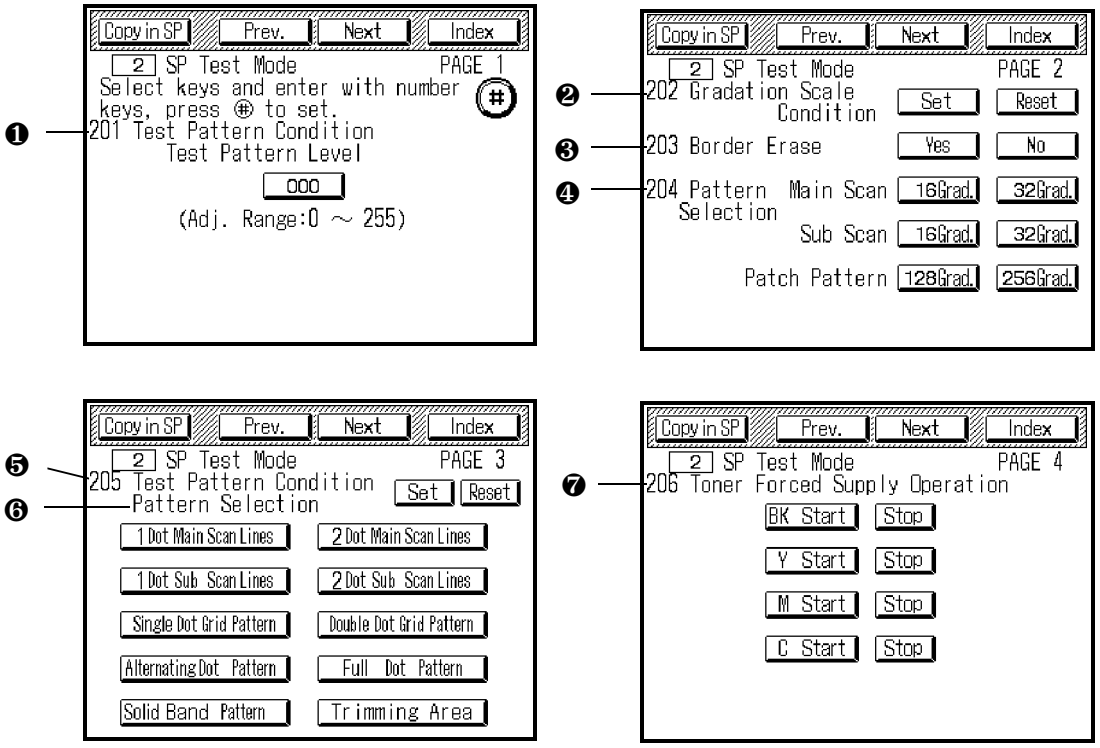


Item	Function	Note
❶	Adjusts the width of the blank margin at the edges of the copy paper. ① Adjusts the blank margin at the right edge of the copy paper ② Adjusts the blank margin at the left edge of the copy paper ③ Adjusts the blank margin at the leading edge of the copy paper ④ Adjusts the blank margin at the trailing edge of the copy paper	Adjustable range: right edge: -5 ~5 mm left edge: -5 ~5 mm lead edge: -5 ~5 mm trailing edge: -5 ~5 mm
❷	Adjusts the black level target (DA1) for the AGC.	Default:8 Do not change the data in the field.
❸	Adjusts the black level target (DA2) for the AGC.	Default:4 (R-E, G-E, B-E, R-O, G-O, B-O) Do not change the data in the field.
❹	Selects the AD-VREF target voltage to desire the exposure lamp voltage in the AGC.	Standard data: 2.5 ~ 2.8 Do not change the data in the field.
❺	Selects the AD-VREF coefficient so that white shading data won't overflow.	Default data: Copier 110 SPU: ??? Do not change the data in the field.

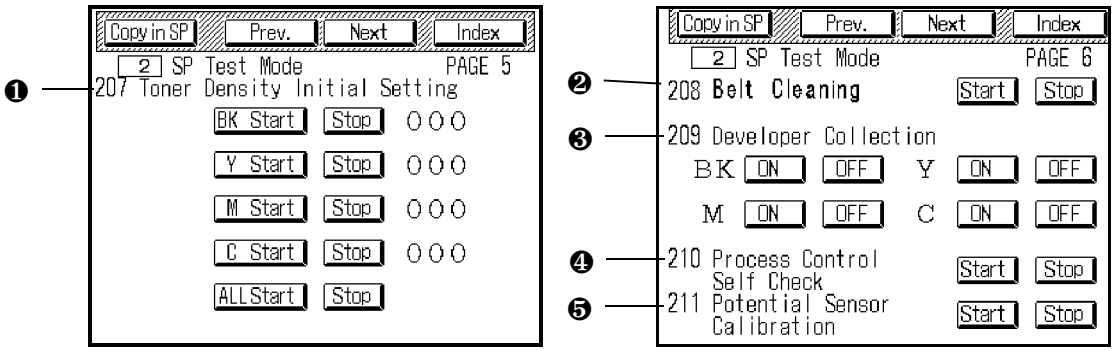

Copy in SP
Prev.
Next
Index
1 SP Adjustment PAGE19
Select keys and enter with number keys, press # to set.
❶ 124 AD-Vref Coefficient (Data Mode)
Copier R-E 000 G-E 000 B-E 000
R-O 000 G-O 000 B-O 000
SPU R-E 000 G-E 000 B-E 000
R-O 000 G-O 000 B-O 000
(Adj. Range:50 ~ 200%)
1 SP Adjustment PAGE20
Select keys and enter with number keys, press # to set.
❷ 125 Exposure Lamp Voltage 00
(Adj. Range:50 ~ 75V)
❸ 130 Vertical Line Alignment
Left Edge 00 Right Edge 00
②
①
1 SP Adjustment PAGE21
Select keys and enter with number keys, press # to set.
❹ 126 Lead Edge Registration(Scanning)
0000
(Adj. Range:0 ~ 4095)
❺ 127 Side to Side Registration(Scanning)
000
(Adj. Range:0 ~ 255)
1 SP Adjustment PAGE22
❻
128 Scanner Motor Current Adjustment
-000 − +
129 SubScan Magnification Fine Adjustment
+00 − +

Item	Function	Note
❶	Factory use only (Gray balance adjustment)	Do not change the data in the field.
❷	Adjusts the exposure lamp input voltage during the adjustment in the factory. This does not influence the exposure lamp input voltage during the copying.	Default: 60 V Adjustable range: 50~75 V Do not change the data in the field.
❸	Adjust the YMCBk vertical line alignment at the sides of copies caused by the CCD board positioned not perpendiculanrly to the light axis.	① If the image alignment at the left side is incorrect, change this data. ② If the image alignment at the right side is incorrect, change this data. (See section 5 for the detail)
❹	Adjusts the vertical registration for the scanned image by adjusting the laser exposure start timing.	Default: 48 Adjustable range: 0~4095 Do not change the data in the field.
❺	Adjusts the horizontal registration for the scanned image by adjusting the laser exposure start timing.	Default: 128 Adjustable range: 0~255 Do not change the data in the field.
❻	Adjust the scanner motor speed by changing the scanner motor input current	Motor current adjustment Default: 100 Fine adjustment Default: 0 Do not change the data in the field.

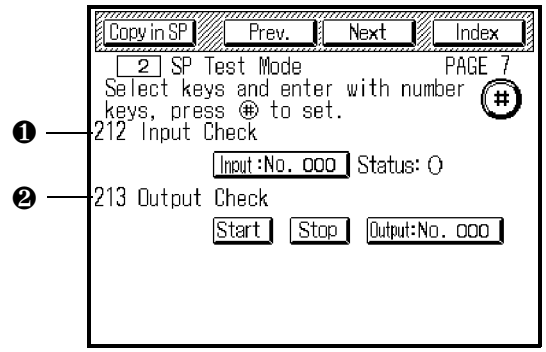
2.2.2 SP Test Mode

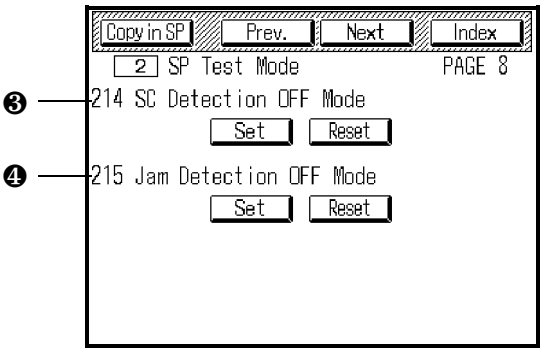


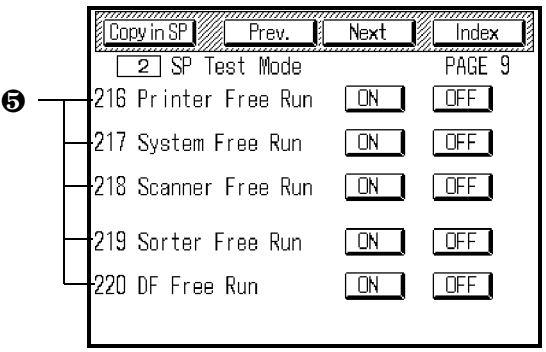
Item	Function	Note
❶	Adjusts the laser power for the test pattern density in 256 grades.	Default: 255 This function effects the items❺, ❻.
❷	Enables the gray scale printing.	Default: Reset
❸	Enable to create the white margin between the different density gray scales.	Default: No
❹	Selects the kind of gray scales.	Access the Copy in SP and press the start key to print the gray scales.
❺	Enables the test pattern printing.	Default: Reset If both test pattern (#205) and gradation scale (#202) are enabled, only the gradation pattern is printed.
❻	Selects the kind of test patterns.	Access the Copy in SP and press the start key to print the test pattern.
❼	Factory use only	Do not use in the field.



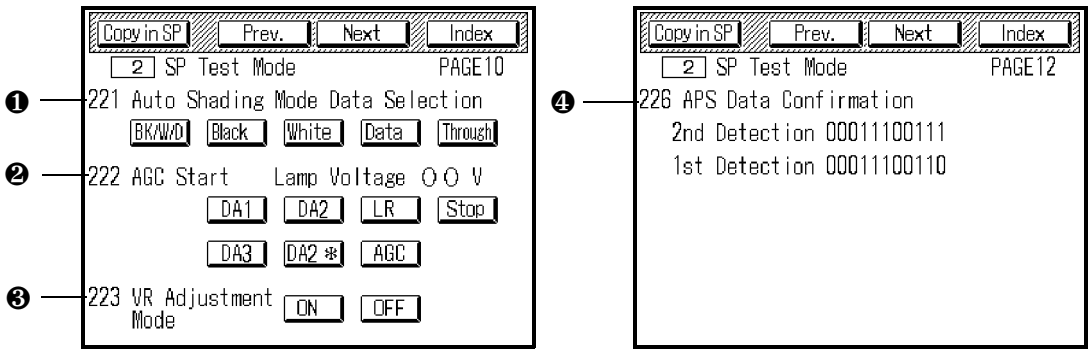
Item	Function	Note
❶	Starts and stops the toner density sensor initial setting. Indicates the gain data of each color TD sensor. Both toner supply reference data of TD sensor and TD sensor gain data are set automatically by using new developer.	With new developer, do not make any copy before performing the developer initial setting. Perform this mode without the toner tank set. This mode is required when new developer is set or the TD sensor is replaced. This mode automatically stops after completing.
❷	Perform the transfer belt cleaning mode.	This mode automatically stops after about 15 seconds.
❸	Starts and stops the developer collection.	Bk or color development drive motor rotates and the selected color sleeve motor rotates forward and reverse alternatively.
❹	Starts and stops the process control self check.	Perform this mode when the following parts are replaced (or cleaned) Drum potential sensor/OPC drum/ charge corona wire, charge corona grid, and casing/lamps around the OPC drum/developer/RAM etc. This mode should be performed with a drum not used for more than 5 minutes. This mode automatically stops after completing.
❺	Starts and stops the drum potential sensor calibration.	This mode automatically stops after completing.







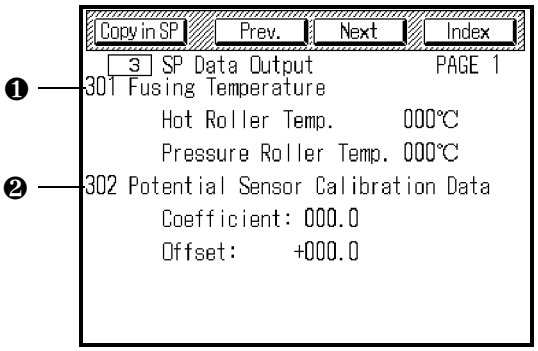
Item	Function	Note
❶	Use to check if the sensors or switches are correctly activated and de-activated.	Status 0 --- de-activated Status 1 --- activated
❷	Use to check if the motor, solenoid, clutch etc. are correctly activated and de-activated.	Access this mode as follows: 1. Touch the output mode key. 2. Enter the electrical component number by using the number keys on the operation panel. 3. Touch the enter key. Touch the start key to activate and touch the stop key to de- activate the electrical component.
❸	Disables self diagnostic function.	Default: Reset (enable)
❹	Disables jam detection (ON check).	Default: Reset (enable)
❺	Starts each free run mode.	Paper is not fed in free run modes. When using the system free run, close the platen cover or place white sheets of paper on the exposure glass to avoid toner scattering inside the machine.

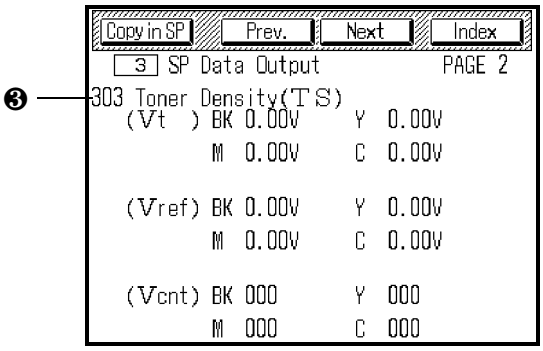


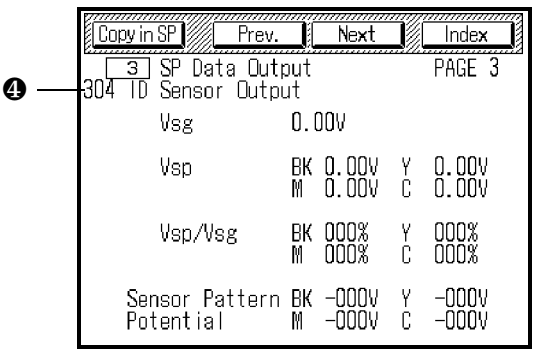
NOTE: Page 11 and page 13 is not used

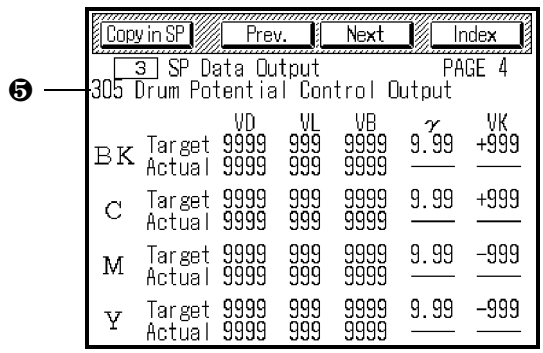
Item	Function	Note
❶	Separately perform the shading compensation sequence	Factory use only
❷	Separately perform the auto gain control sequence	Factory use only
❸	Turn on the exposure lamp.	Factory use only
❹	Use to check if the original size sensors are correctly activated or de-activated at the 1st and 2nd detection.	Status 0 --- de-activated Status 1 --- activated

2.2.3 SP Data Output








Copy in SP
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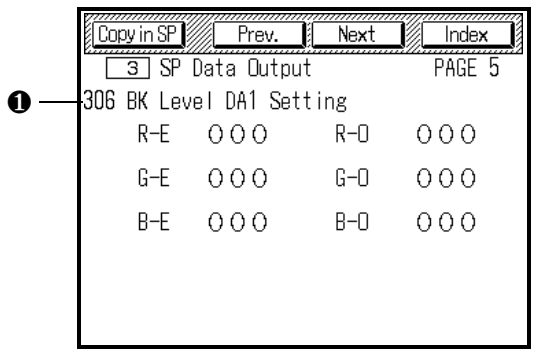
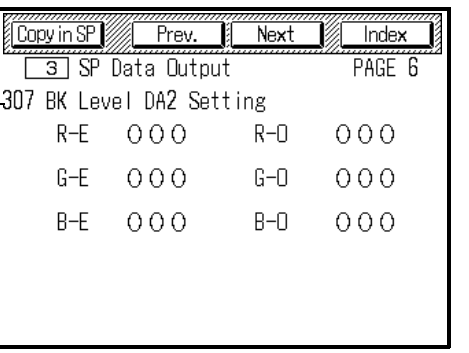
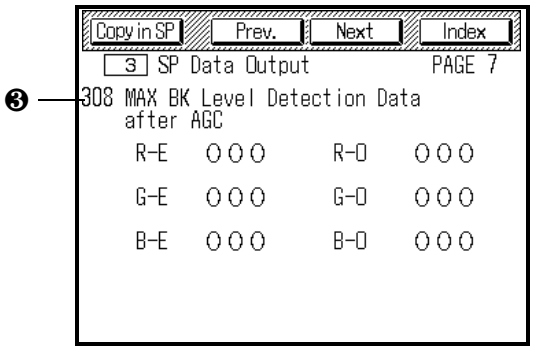
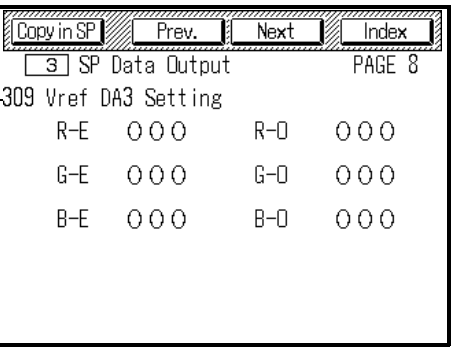
3 SP Data Output
PAGE 4
305 Drum Potential Control Output
VD VL VB γ VK
BK Target 9999 999 9999 9.99 +999
Actual 9999 999 9999
C Target 9999 999 9999 9.99 +999
Actual 9999 999 9999
M Target 9999 999 9999 9.99 -999
Actual 9999 999 9999
Y Target 9999 999 9999 9.99 -999
Actual 9999 999 9999

Item	Function	Note
❶	Indicates the hot roller/pressure roller temperature based on the thermistors output.	
❷	Indicates the potential sensor calibration data	standard data: 230 ± 20
❸	Indicates data (VT, VREF, VCNT) relate to each color toner density sensor	
❹	Not used.	
❺	Indicate the target and actual data relate to process control.	VD: charge potential VL: exposed drum potential VB: development bias γ: development gamma VK: development reference data



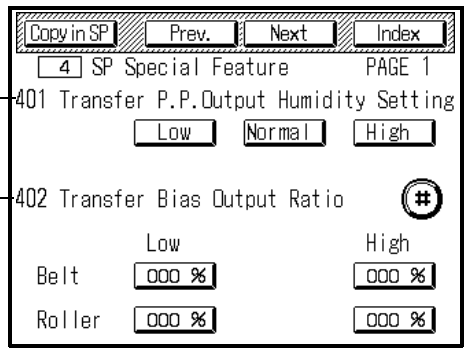






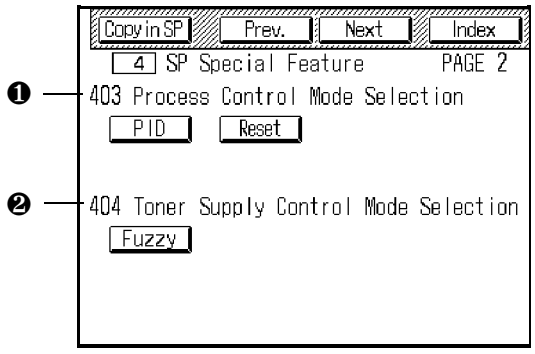
Item	Function	Note
❶	Displays DA1 settings.	Factory use only
❷	Displays DA2 settings.	Factory use only
❸	Displays DA2* settings.	Factory use only
❹	Displays DA3 settings.	Factory use only

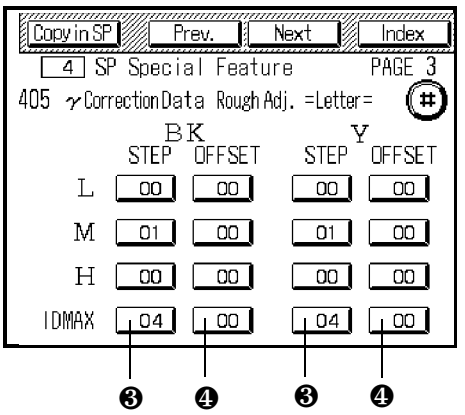
2.2.4 SP SPECIAL FEATURES

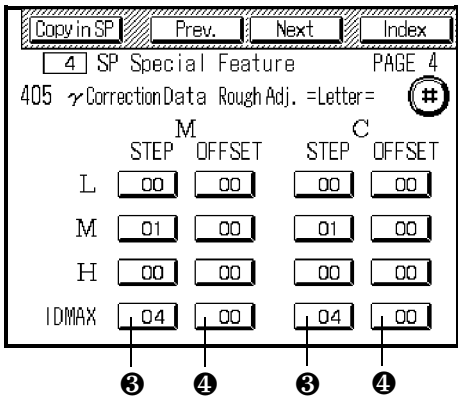


Item	Function	Note
❶	Select the output voltage for the transfer belt bias and the transfer roller bias according to the humidity condition. (Refer to the table below for the actual outputs.)	Default: Normal This function is effective under the following conditions: 1. Humidity sensor is not working well: • Output is 0. • Temperature output is for over 49°C or below 2°C. • Humidity output is for over 98% or below 2%. 2. Humidity sensor connector is disconnected.
❷	Changes the output voltage for the transfer roller bias according to the entered output ratios. (Refer to the table below for the actual outputs.)	Default: 100% for all settings This functions according to the actual humidity or to the setting for SP401.

Conditions	SP401 setting		Low	Normal	High
	SP402 setting	Belt	Low: A%	High: B%	
		Roller	Low: C%	High: D%	
	Actual humidity		Less than 4.3 g/m^3	4.3 ~11.3 g\m^3	More than 11.3 g/m^3
Results	Transfer belt bias	1C	(Output for less than 4.3 g/m^3) x (A%)	(Output for 4.3 ~ 11.3 g/m^3) x (B%)	(Output for more than 11.3 g/m^3) x (B%)
		2C ~ 4C	Default output		
	Transfer roller bias	1C ~ 4C	(Output for less than 4.3 g/m^3) x (C%)	Output for 4.3 ~ 11.3 g/m^3	(Output for more than 11.3 g/m3) x (D%)

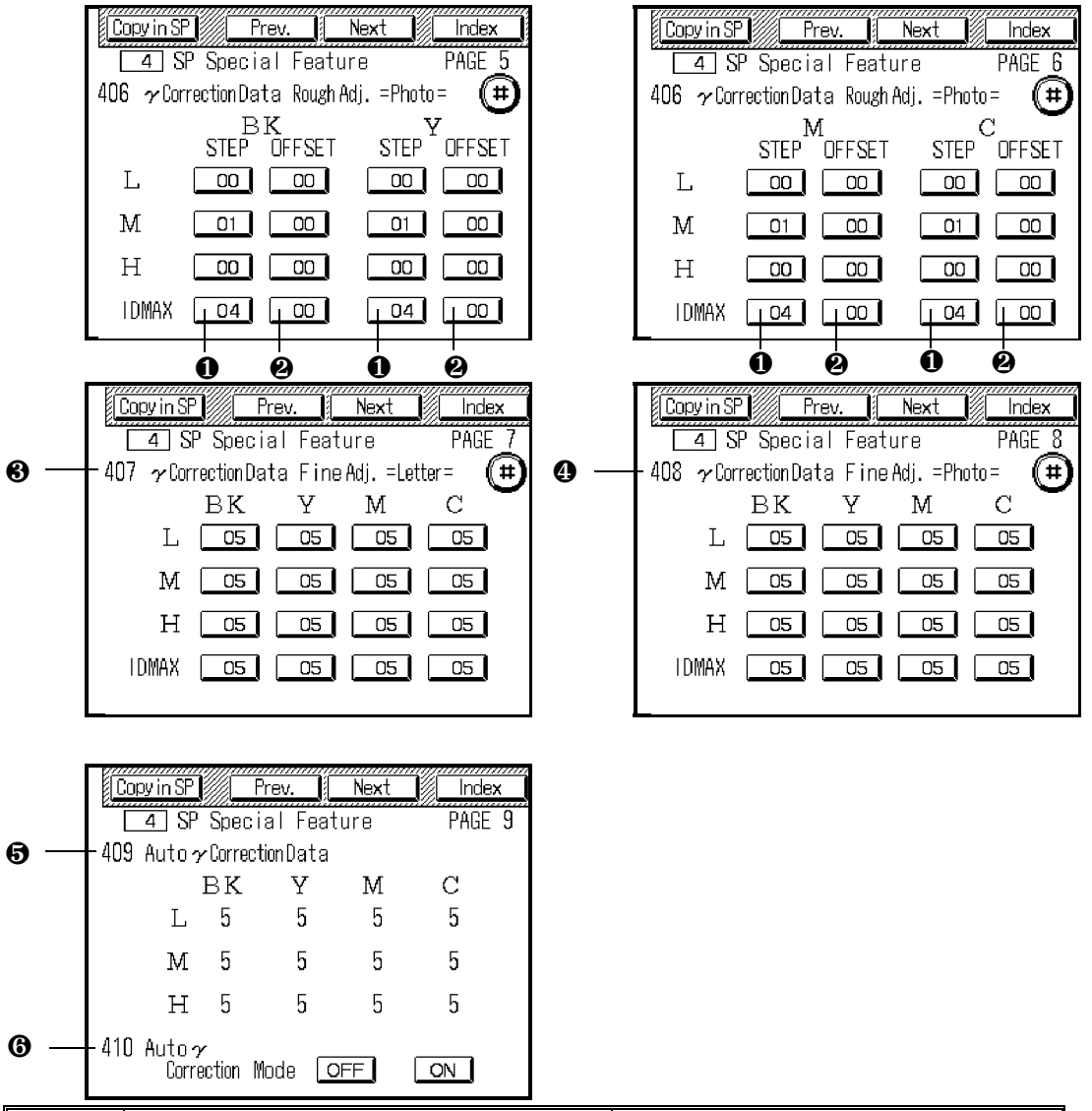






NOTE: Page 1 is not used.

Item	Function	Note
❶	Factory use only	"PID" setting must be selected. Default: Reset
❷	Selects toner supply mode.	Default: Fuzzy (No choice other than fuzzy for this mode.)
❸	Factory use only	Do not change the STEP data in the field
❹	Adjusts image density for each color in letter mode. (Letter mode rough adjustment.)	See section 5, color balance adjustment.


Copy in SP
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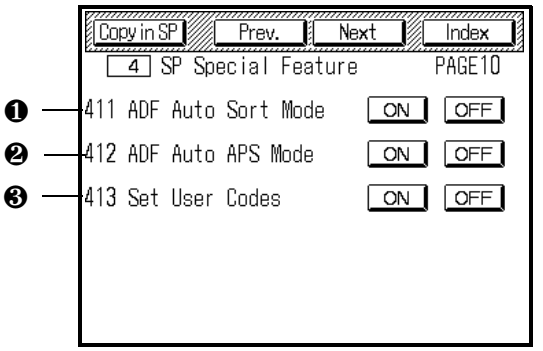
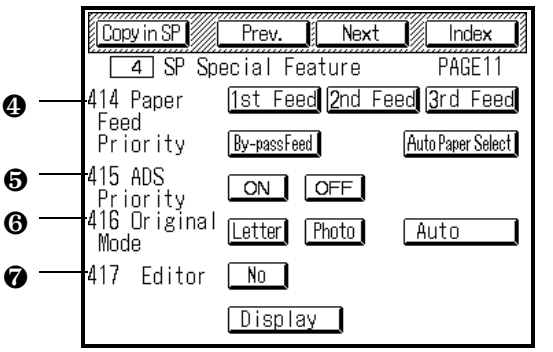
4 SP Special Feature
PAGE 5
406 γ Correction Data Rough Adj. =Photo=
BK
Y
STEP OFFSET STEP OFFSET
L 00 00 00 00
M 01 00 01 00
H 00 00 00 00
IDMAX 04 00 04 00
❶ ❷ ❶ ❷
PAGE 6
406 γ Correction Data Rough Adj. =Photo=
M
C
STEP OFFSET STEP OFFSET
L 00 00 00 00
M 01 00 01 00
H 00 00 00 00
IDMAX 04 00 04 00
❶ ❷ ❶ ❷
PAGE 7
❸ 407 γ Correction Data Fine Adj. =Letter=
BK Y M C
L 05 05 05 05
M 05 05 05 05
H 05 05 05 05
IDMAX 05 05 05 05
PAGE 8
❹ 408 γ Correction Data Fine Adj. =Photo=
BK Y M C
L 05 05 05 05
M 05 05 05 05
H 05 05 05 05
IDMAX 05 05 05 05
PAGE 9
❺ 409 Auto γ Correction Data
BK Y M C
L 5 5 5 5
M 5 5 5 5
H 5 5 5 5
❻ 410 Auto γ Correction Mode OFF ON

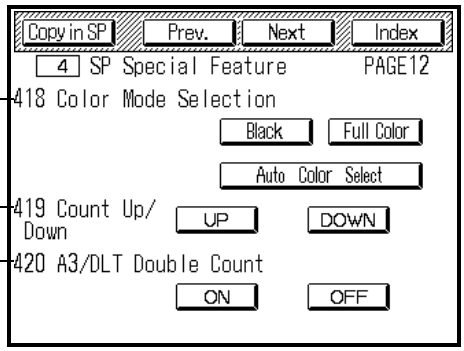
Item	Function	Note
❶	Factory use only	Do not change the STEP data in the field
❷	Adjusts image density for each color in photo mode (Photo mode rough adjustment)	See section 5, color balance adjustment.
❸	Adjusts each color image density (Letter mode fine adjustment)	Do not change the data in the field
❹	Adjusts each color image density (Photo mode fine adjustment)	Do not change the data in the field
❺	Indicates the correction data decided in auto γ correction	Indication only
❻	Enable or disable the auto γ correction mode.	Default: ON

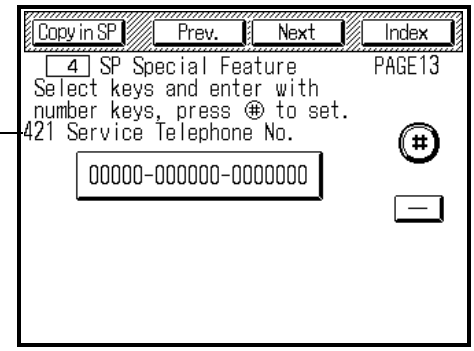
Service Tables

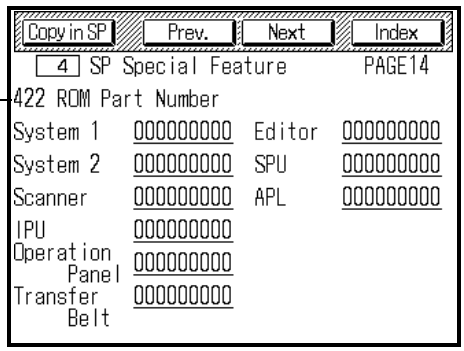




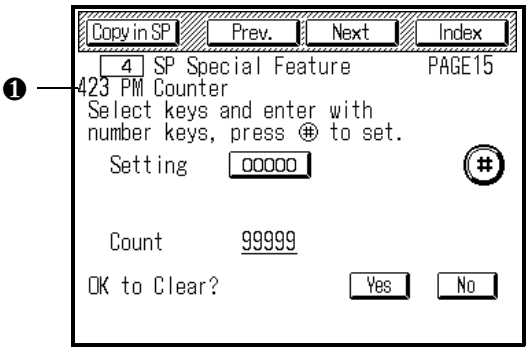
Item	Function	Note
❶	Enables automatic sort mode when 2 or more is entered in the copy counter and more than one originals are set on the DJF feed tray.	Default: OFF
❷	Enables automatic APS mode when original is set on the DJF feed tray.	Default: OFF This function is effective when paper feed priority (SP414) is not set to APS.
❸	Enables user code mode.	Default: OFF The Key counter shorting connector should be disconnected to enable user code mode.
❹	Selects the default feed station	Default: Auto Paper Selection
❺	Enables ADS mode selection as a default mode	Default: ON
❻	Selects the default original mode	Default: Auto
❼	Enables the display editor operation.	Default: No When the display editor is installed, select "Display".

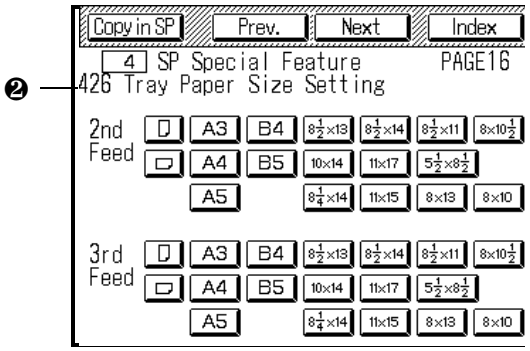






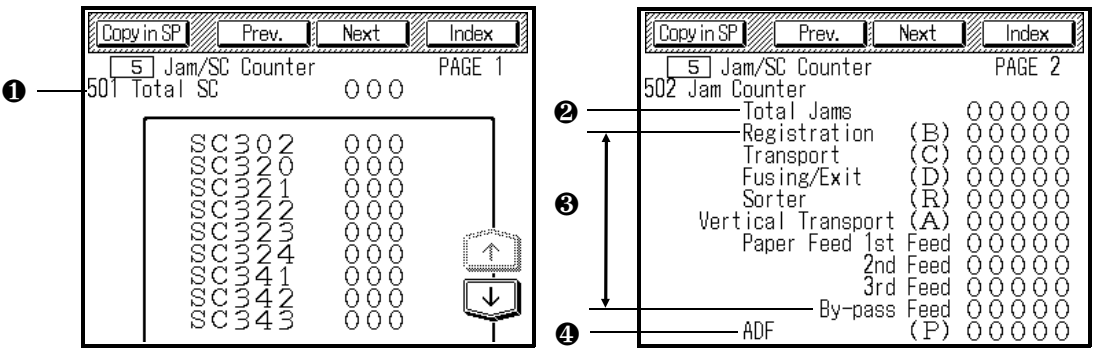
Item	Function	Note
❶	Selects the default copy mode.	Default:Full Color
❷	Selects copy count up or down.	Default:UP
❸	Counts twice when an A3 or 11"x17" copy is made.	Defaults:OFF
❹	Enters the service center telephone number. This telephone number is indicated on the LCD when service call condition occurs or PM is required.	Entering procedure: 1. Touch [000000000000000] key. 2. Enter numbers by pressing the number keys. (touch [—] to enter the hyphen). 3. Touch (#).
❺	Indicates the ROM reference number with suffix, on each PCB.	System 1: Main control IC522 System 2: Main control IC509 Scanner : Reference number for the combination of IC127/128 and IC134 on the scanner control board IPU : Reference number for the combination of IC303 and IC309 on the IPU board Operation Panel: IC101 Transfer Belt : Transfer belt motor drive IC609 Editor : Reference number of editor ROM





Item	Function	Note
❶	Selects the PM alarm interval after counter clear.	If you do not use PM alarm, set "0". Default: 0
❷	Selects the paper size and direction of each paper feed station.	Refer to section 3 for details of paper size change procedure.

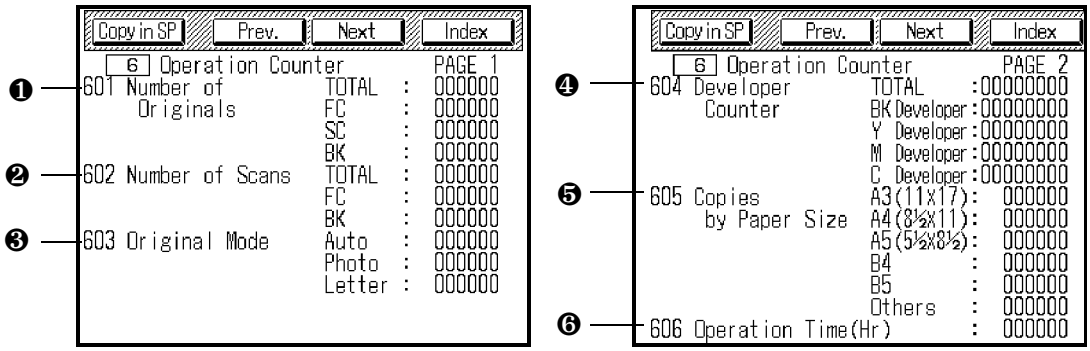
2.2.5 JAM / SC COUNTER



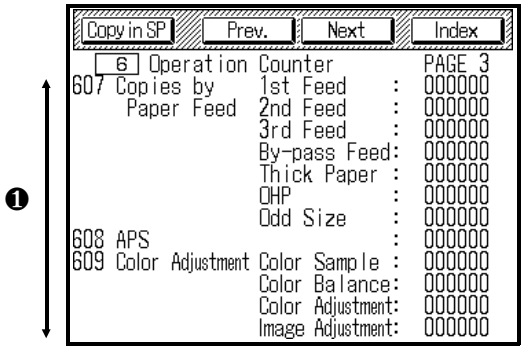
Item	Function	Note
❶	Indicates the total number of service calls for each SC codes. Press ↑ to scroll up. Press ↓ to scroll down.	See section 6 for details of each SC codes. The counters for SCs that have not occurred even once are not displayed.
❷	Indicates the total number of jams in the copier and all peripherals.	
❸	Indicates the total number of jams at each location.	
❹	Indicates the total number of jams in the DJF.	

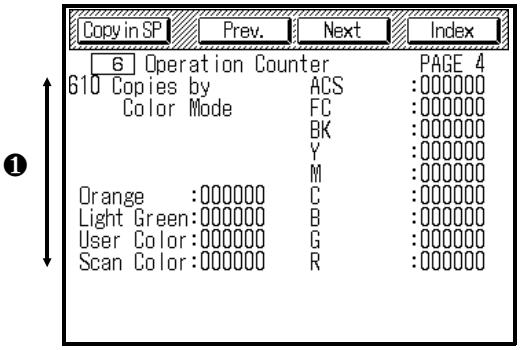
Service Tables

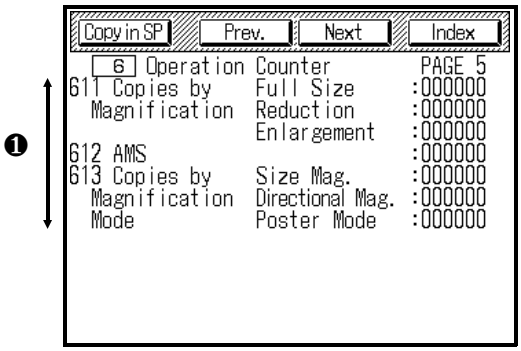
2.2.6 Operation Counter

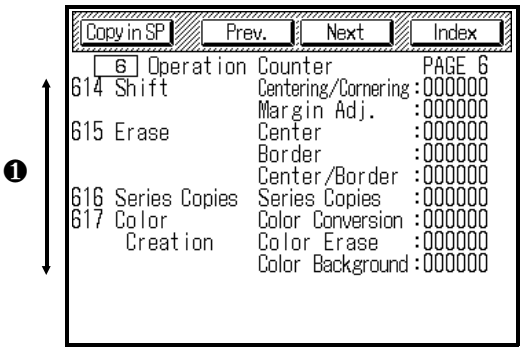


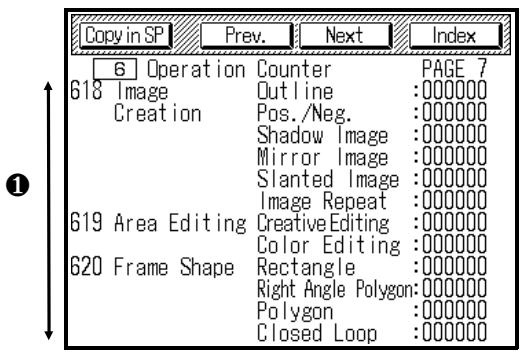
Item	Function	Note
❶	Indicates the total number of originals used for each color modes.	
❷	Indicates the total number of scans broken down by the copy modes.	
❸	Indicates the total number of copies broken down by the original modes.	
❹	Indicates the total number of scans since the last PM for each color developer.	
❺	Indicates the total number of copies broken down by the paper size.	
❻	Indicates the total operation time.	



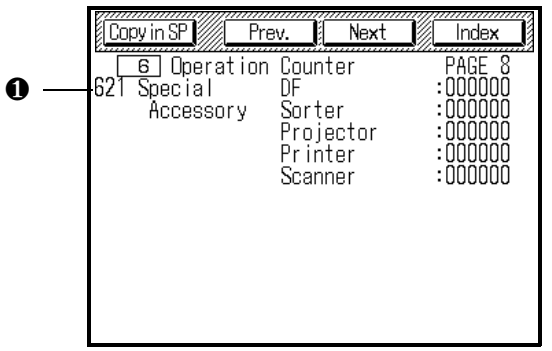


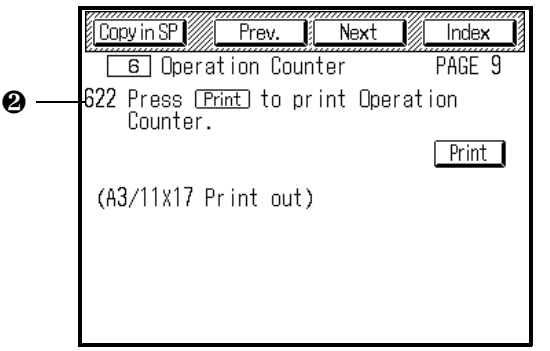




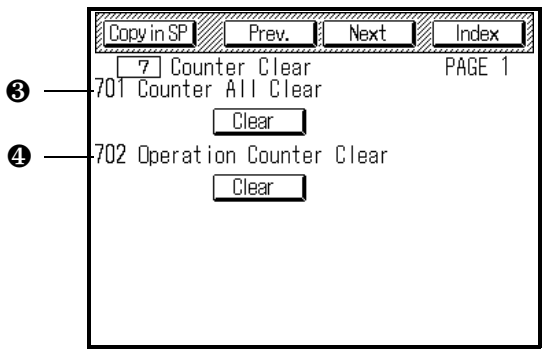


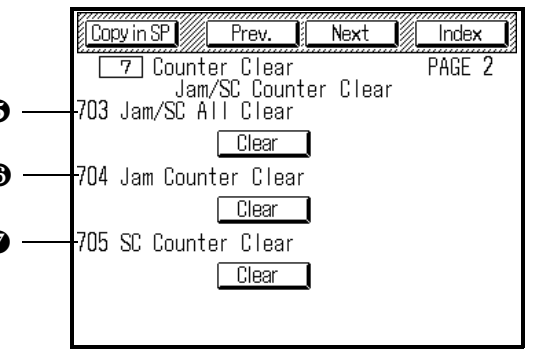
Item	Function	Note
❶	Indicates the total number of copies broken down by the copy modes.	





2.2.7 Counter Clear



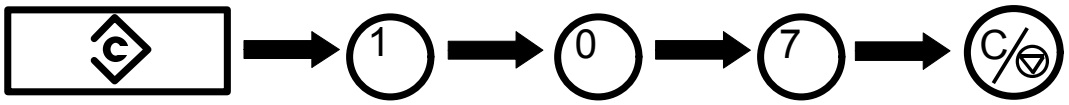


Item	Function	Note
❶	Indicates the total number of copies for each peripheral.	
❷	Prints all operation counters on the A3/11" x 17" paper.	A3/11" x 17" paper must be loaded in the copier.
❸	Clears all counters	Procedure: 1. Touch the clear key 2. The display asks Yes or No, if you are sure to clear, touch Yes, if you do not want to clear, touch No.
❹	Clears all operation counters	
❺	Clears all jam and SC counters	
❻	Clears all jam counters	
❼	Clears all SC counters	

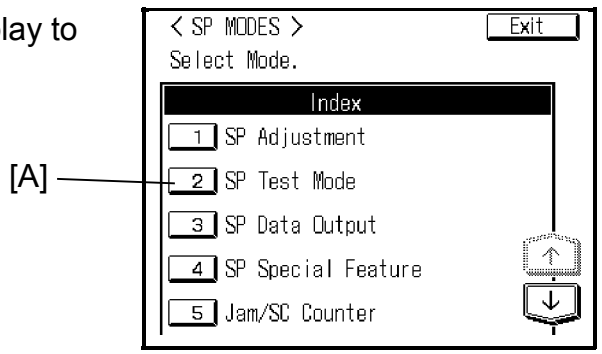
2.3 SENSOR/SWITCH/SIGNAL DATA CHECK (INPUT MODE)

– How to check the sensor/switch/signal –

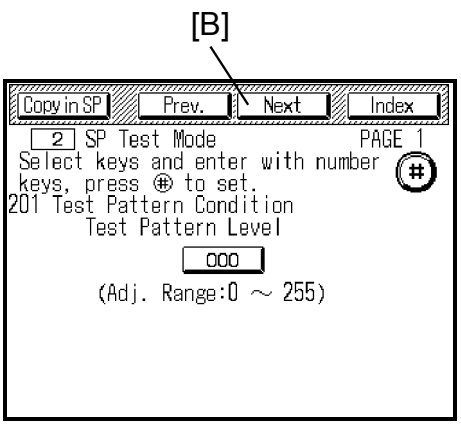
1. Enter SP mode as follows:
   1) Press the mode clear key.
   2) Enter "107"
   3) Press the clear/stop key for more than 3 seconds.



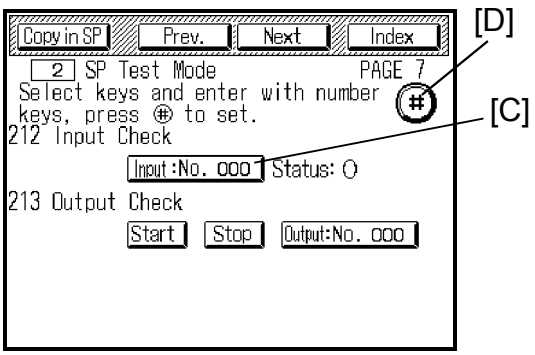
2. Touch [2] [A] on the display to access SP test mode.



3. Touch [Next] [B] on the display six times.



4. 1) Touch [Input No. 000] [C].
   2) Enter the input sensor/switch/signal number by using the number keys (Refer to the table in the following pages).
   3) Press the Enter key [D].



Service Tables

2.3.1 Input Check Mode Table

Input No.	Sensor/Switch/Signal	Status	
		0	1
1	Charge corona leak detection	Not detected	Detected
2	PCC leak detection	Not detected	Detected
3	Development bias leak detection	Not detected	Detected
4	Bk-Development drive motor lock detection	Not monitoring	Monitoring (Motor rotating)
5	Color-Development drive motor lock detection	Not monitoring	Monitoring (Motor rotating)
6	Drum motor lock detection	Not monitoring	Monitoring (Motor rotating)
7	Transport motor lock detection	Not monitoring	Monitoring (Motor rotating)
8	Cleaning motor lock detection	Not monitoring	Monitoring (Motor rotating)
9	Polygon motor lock detection	Not monitoring	Monitoring (Motor rotating)
10	Bk-Sleeve motor abnormal detection	Not monitoring	Monitoring (Motor rotating)
11	Y-Sleeve motor abnormal detection	Not monitoring	Monitoring (Motor rotating)
12	M-Sleeve motor abnormal detection	Not monitoring	Monitoring (Motor rotating)
13	C-Sleeve motor abnormal detection	Not monitoring	Monitoring (Motor rotating)
14	Paper feed motor lock detection	Not monitoring	Monitoring (Motor rotating)
15	Paper discharge leak detection	Not detected	Detected
16	By-pass feed table sensor	Closed	Open
17	Front door safety switches	Closed	Open
18	LD power supply OFF detection	Not detected	Detected
19	Vertical transport set switches	Closed	Open
20	Toner overflow sensor	Not full	Full
21	Registration guide set sensor	Set	Not set
22	Oil end sensor	Not end	End
23	By-pass paper end sensor	Paper detected	Paper not detected
24	1st paper end sensor	Paper detected	Paper not detected
25	2nd paper end sensor	Paper detected	Paper not detected

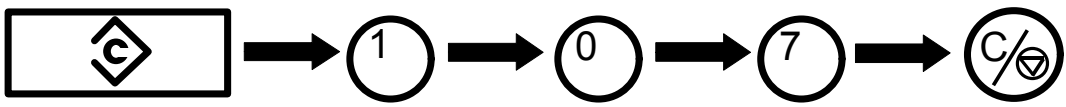
Input No.	Sensor/Switch/Signal	Status	
		0	1
26	3rd paper end sensor	Paper detected	Paper not detected
27	Transfer belt position sensor	Release	Touch
28	Transfer roller position sensor	Release	Touch
29	1st lift sensor	Not lifted	Lifted
30	2nd lift sensor	Not lifted	Lifted
31	3rd lift sensor	Not lifted	Lifted
32	1st paper feed sensor	Paper not detected	Paper detected
33	2nd paper feed sensor	Paper not detected	Paper detected
34	3rd paper feed sensor	Paper not detected	Paper detected
35	Registration sensor	Paper not detected	Paper detected
36	Transport sensor	Paper not detected	Paper detected
37	Exit sensor	Paper not detected	Paper detected
38	1st paper size switch-1	Actuated	Not actuated
39	1st paper size switch-2	Actuated	Not actuated
40	1st paper size switch-3	Actuated	Not actuated
41	1st paper size switch-4	Actuated	Not actuated
42	1st paper size switch-5	Actuated	Not actuated
43	By-pass paper size-1	Grounded (Low)	Not grounded (High)
44	By-pass paper size-2	Grounded (Low)	Not grounded (High)
45	By-pass paper size-3	Grounded (Low)	Not grounded (High)
46	By-pass paper size-4	Grounded (Low)	Not grounded (High)
47	2nd tray set switch	Not set	Set
48	3rd tray set switch	Not set	Set
49	By-pass length sensor	Paper not detected	Paper detected
50	Sorter connection detection	Not connected	Connected

2.4 ELECTRICAL COMPONENT CHECK (OUTPUT MODE)

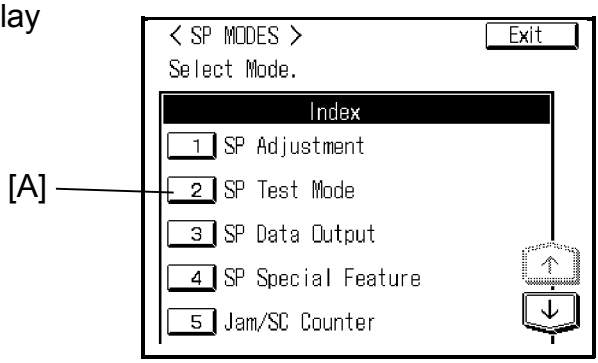
CAUTION: The motors keep turning in this mode regardless of the upper or lower limit sensor signal. Do not keep the electrical component on for a long time to prevent mechanical or electrical damage.

– How to check the sensor/switch/signal –

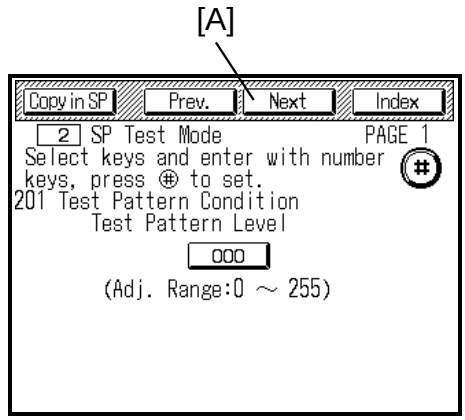
1. Enter SP mode as follows:
   1) Press the mode clear key.
   2) Enter "107".
   3) Press the clear/stop key for more than 3 seconds.



2. Touch [2] [A] on the display to access SP Test mode.



3. Touch Next [A] on the display six times.

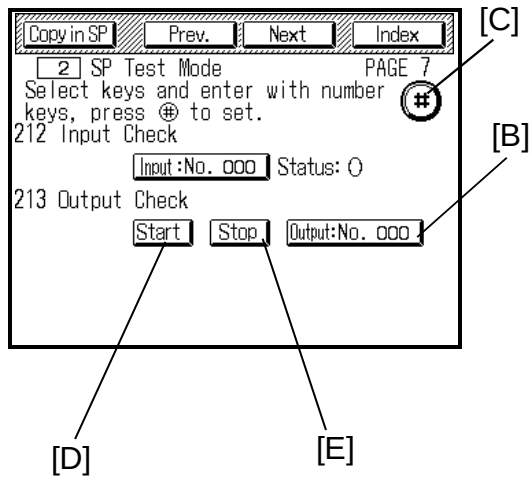


4. 1) Touch Output No. 000 [B].

2) Enter the electrical component number by using the number keys on the operation panel. (Refer to the table in the following pages.)

3) Press the Enter key [C].

4) Press Start [D] to activate and press Stop [E] to de-activate the electrical component.



NOTE: If you select and start another output mode without touching Stop , the two output modes function simultaneously.
After completing, stop all test modes now functioning.

Service Tables

2.4.1 Output Check Mode Table

Output No.	Electrical Component
1	Charge corona with grid - Bk
2	Charge corona with grid - C
3	Charge corona with grid - M
4	Charge corona with grid - Y
5	Development bias - Bk
6	Development bias - C
7	Development bias - M
8	Development bias - Y
9	Transfer belt bias - 1C
10	Transfer belt bias - 2C
11	Transfer belt bias - 3C
12	Transfer belt bias - 4C
13	PCC
14	Drum cleaning bias (BR)
15	Transfer roller bias - Normal paper - 1C
16	Transfer roller bias - Normal paper - 2C
17	Transfer roller bias - Normal paper - 3C
18	Transfer roller bias - Normal paper - 4C
19	Transfer roller bias - OHP - 1C
20	Transfer roller bias - OHP - 2C
21	Transfer roller bias - OHP - 3C
22	Transfer roller bias - OHP - 4C
23	Transfer roller bias - Thick Paper - 1C
24	Transfer roller bias - Thick Paper - 2C
25	Transfer roller bias - Thick Paper - 3C
26	Transfer roller bias - Thick Paper - 4C
27	Discharge plate bias
28	Transfer belt motor (180mm/sec)
29	Transfer belt motor (90mm/sec)
30	Bk-Development drive motor
31	Color development drive motor
32	Drum motor - Forward
33	Drum motor - Reverse
34	Cleaning motor
35	Polygon motor
36	Bk-Sleeve motor - Forward

Output No.	Electrical Component
37	Bk-Sleeve motor - Reverse
38	Y-Sleeve motor - Forward
39	Y-Sleeve motor - Reverse
40	M-Sleeve motor - Forward
41	M-Sleeve motor - Reverse
42	C-Sleeve motor - Forward
43	C-Sleeve motor - Reverse
44	Y-Toner supply motor - Forward
45	Y-Toner supply motor - Reverse
46	M-Toner supply motor - Forward
47	M-Toner supply motor - Reverse
48	C-Toner supply motor - Forward
49	C-Toner supply motor - Reverse
50	B- Toner supply motor - Forward
51	Bk-Toner supply motor - Reverse
52	1st lift motor - Forward
53	1st lift motor - Reverse
54	2nd lift motor - Forward
55	2nd lift motor - Reverse
56	3rd lift motor - Forward
57	3rd lift motor - Reverse
58	Paper feed motor
59	Transport motor (180mm/sec)
60	Transport motor (90mm/sec)
61	Transport fans
62	Development exhaust fan - Low
63	Development exhaust fan - High
64	Fusing exhaust fan - Low
65	Fusing exhaust fan - High
66	Charge inlet fan
67	LD cooling fan
68	Polygon motor cooling fan - Low
69	Polygon motor cooling fan - High
70	Cleaning blade solenoid - Touch
71	Cleaning blade solenoid - Release
72	Lubricant brush solenoid - Touch
73	Lubricant brush solenoid - Release
74	Not used

Output No.	Electrical Component
75	By-pass pick-up solenoid
76	1st pick-up solenoid
77	2nd pick-up solenoid
78	3rd pick-up solenoid
79	1st separation roller solenoid
80	2nd separation roller solenoid
81	3rd separation roller solenoid
82	Fusing heater - Hot roller
83	Fusing heater - Pressure roller
84	Anti-condensation heater relay (on noise filter board)
85	Main power relay
86	Potential sensor calibration relay (on H.V.S. Board – B)
87	Transport motor relay
88	Transfer belt position clutch
89	Transfer roller position clutch
90	Registration clutch
91	By-pass feed clutch
92	1st Feed clutch
93	2nd Feed clutch
94	3rd Feed clutch
95	Lubricant brush position clutch
96	Not used
97	Quenching lamp
98	Cleaning entrance seal solenoid - Touch
99	Cleaning entrance seal solenoid - Release

2.5 SP MODES AFTER REPLACEMENT AND CLEANING

The following table shows the necessary SP modes, procedures and priority order when the listed items are replaced or cleaned:

NOTE1: When starting the necessary procedures, make sure the developer for all colors are replaced.

NOTE2: Make sure of the following items concerning the process control self check.

- Confirm that the PID key is selected in SP Special Feature P-2, No. 403 before performing the process control self check.
- The process control self check must be performed when there is no residual voltage on the OPC drum. (Wait at least 5 minutes after the last copy job.)
- Confirm that the difference between 'Target' and 'Actual' of gamma (γ) in SP Data Output P-4, No. 305 does not exceed 5 for each developer. If any of the difference exceeds 5, wait 5 minutes and perform the process control self check again.

●: Replaced ○: Cleaned

No.	SP Mode No.	Items Description	Develop-er	TD Sensor	OPC Drum	Drum Potent-ial Sensor	Charge Corona • wire • grid • casing	Trans-fer Belt
1	2-5, 207	Toner Density Initial Setting (without toner tank) **NOTE1**	●	●				
2	3-2, 303	$V_T/V_{REF}/V_{CONT}$ Confirmation	●	●				
3	—	30 copies with the toner tank	●	●				
4	2-6, 210	Process Control Self Check **NOTE2**	●	●	●	●	● ○	
5	2-6, 208	Belt Cleaning Mode						●
6	4-3 ~ 6, 405, 406	Color Balance Adjustment	●	●	●	●	● ○	●

2.6 MEMORY ALL CLEAR PROCEDURE

CAUTION: Memory all clear procedure clears all the correction data for process control and software counters, and returns all the modes to the default settings.
Normally, this mode should not be performed.

This procedure is required only when the copier malfunctions due to damaged RAM or when replacing the RAM board for any reason.

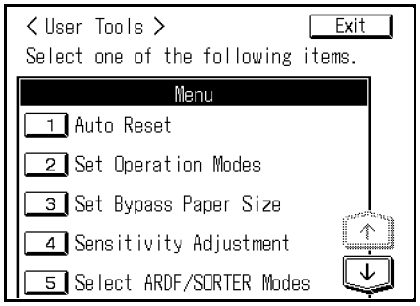
NOTE: Before performing the following procedures, locate the factory set data sheet under the operation panel and compare with the current settings of the machine if possible. If some adjustments were performed, write down the latest settings to make the adjustment procedure easier later on.

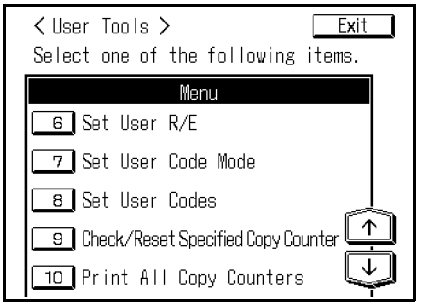
- Print out the "Copy Counters" by using the user tools access procedure 2, and make a record of the user copy counter before performing the memory all clear procedure.
- Print out the "Operation Counter" (Operation Counter P-9, No. 622) if necessary.

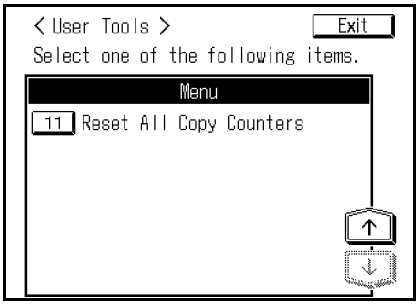
1. Confirm that the main switch is **ON**.
2. Turn the DIP - switch 501 No.4 of the main control board ON and OFF.
3. Turn the main switch OFF and ON.
4. Perform the point accuracy adjustment for the touch pannel LCD. (See section 5, Others section.)
5. Enter all the settings listed on the factory set data sheet.
6. Replace all developer. (See section 5, Development section.)
7. Check copy quality and paper path and do the necessary adjustments.
8. When the "Memory All Clear" procedure does not succeed, replace the RAM board and contact your service key person for special steps to be followed.

3. USER TOOLS MENU

Customers can change the copier's default settings using the following user tools.



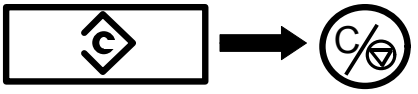




Service Tables

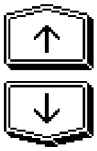
3.1 USER TOOLS ACCESS PROCDURE 1

1. Press the Clear Modes/Stand by key.
2. Press the Clear/Stop key more than 3 seconds until the User Tool Menu appears on the touch panel display.



NOTE: User tools 7, 8, 9, 10, and 11 are not displayed when using this access procedure. Refer to User Tools Access Procedure 2 for these numbers.

3. Select the menu number you want to use by touching the touch panel display.



This copier has 11 user tools. 5 user tools are displayed on the touch panel display at one time. Use these keys to see other user tools.

Exit Use to exit from the user tool menu.

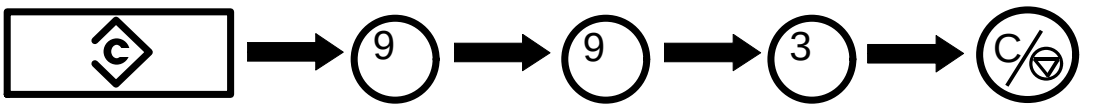
Menu Use to return to the user tool menu.

- Refer to the operating instructions for the contents and functions of user tools.

3.2 USER TOOLS ACCESS PROCEDURE 2

This access procedure is for a key operator, allowing to access all the user tools which includes No. 7, 8, 9, 10, and 11 for the user code mode.

1. Press the Clear Modes/Stand by key.
2. Enter "993".
3. Press the Clear/Stop key more than 3 seconds until the User Tool Menu appears on the touch panel display.



4. TEST POINTS / DIP SWITCHES / LED'S

4.1 MAIN CONTROL BOARD

4.1.1 Test Points

Number	Label	Function	Stand-by (V)	Note
TP501	(FUSE.L)	Pressure roller thermistor output	2.0 ~ 2.1	Main switch on: about 5 V If keeping 0 V or 5 V: NG
TP502	(FUSE.H)	Fusing thermistor output	1.0 ~ 1.1	
TP503	(PSN)	ID sensor output	0 ~ 0.1	About 5 V in stand-by: NG
TP504	(VLT)	Drum potential sensor output	0 ~ 0.3	When copying: 0 ~ 5 V 5 V in stand-by: NG
TP505	(D.TH)	Temperature sensor output (on the humidity sensor)	2.0 ~ 4.0	If keeping 0 V or 5 V: NG
TP506	—	Not used		
TP507	(TS1)(M)	M-TD sensor output	1.5 ~ 3.5	If keeping 0 V or 5 V: NG
TP508	(TS2)(Y)	Y-TD sensor output		
TP509	(TS3)(Bk)	Bk-TD sensor output		
TP510	(TS4)(C)	C-TD sensor output		
TP511	(+ 5V)	+5 V	4.9 ~ 5.3	
TP512	(GND)	Ground		
TP513	(+24 V)	+24 V	24 ± 1	
TP514	(VCA + 12 V)	+12 V	+12 ± 1	
TP515	(VCB –12 V)	–12	–12 ± 1	
TP516	—	Humidity sensor output	1.0 ~ 4.0	If keeping 0 V or 5 V: NG

4.1.2 DIP Switches

DPS501-1, -2, -3: Not used

DPS501-4: RAM clear
(Refer to the Memory All Clean procedure in section 4, 2.6)

4.1.3 LED

LED 502: It turns ON and OFF by counting the program loops run by the main CPU.
If the machine does not become ready with keeping this LED OFF, the main control board might be defective.

4.2 IPU BOARD

4.2.1 DIP Switches

SW300-1: Selects the accuracy level of synchronizing the video signal clock (18.6 MHz) with the laser synchronizing signal.
OFF: 1/15 clock ON: 1/4 clock (**MUST BE ON**)

SW300-2: Designer's use only (**MUST BE OFF**, otherwise entire background appears dirty.)

SW300-3, -4, -5:
Used by designers for monitoring signals. (NORMALLY OFF)

4.2.2 LED's

LED300 ~ 307: IPU-CPU monitor
If all the LED's blink together, the Main-CPU and the IPU-CPU have a communication error. → SC code appears.

LED308: Laser synchronizing signal monitor

LED309: Monitor for the combination of SW300-3, 4, 5.

5. PREVENTIVE MAINTENANCE SCHEDULE

5.1 PM TABLE

NOTE: The numbers mentioned for PM intervals indicate the number of *scans*.

Symbol key: **C:** Clean **R:** Replace **L:** Lubricate **I**: Inspect

ITEM	EM	40K	80K	120K	160K	200K	NOTE
OPTICS							
Platen Cover Sheet	C	C	C	C	C	C	Replace if necessary.
Exposure Glass	C	C	C	C	C	C	Alcohol or glass cleaner
Mirrors, Reflectors		C	C	C	C	C	Cotton pad with water, or blower brush
Lens, Correction Filter		C	C	C	C	C	Blower brush
Exposure Lamp				R			
Scanner Guide Rails		C	C	C	C	C	Dry cloth
Original Size Sensors			C		C		Blower brush
Optics Cooling Fan Filter		R	R	R	R	R	(**NOTE 1**)
PAPER FEED (Main Body)							
Registration Rollers		C	C	C	C	C	Alcohol
Relay Roller (Drive)		C	C	C	C	C	Alcohol
By-pass Pick-up Roller	C	C	C	C	C	R	Water
By-pass Paper Feed Roller	C	C	C	C	C	R	Water
By-pass Separation Roller	C	C	C	C	C	R	Water
By-pass Feed Pad			C		C		Alcohol or water
Paper Feed Guide Plate			C		C		Alcohol or water
Registration Sensor		C	C	C	C	C	Blower brush
PAPER FEED (Paper Supply Unit)							
Paper Guide Plate, Vertical Transport Plate			C		C		Alcohol or water
Pick-up Rollers	C	C	C	C	C	R	Water
Paper Feed Rollers	C	C	C	C	C	R	Water
Separation Rollers	C	C	C	C	C	R	Water
Vertical Transport Rollers			C		C		Alcohol
Vertical Transport Plate			C		C		Alcohol or water
Tray Bottom Plate Pad		C	C	C	C	C	Alcohol or water

ITEM	EM	40K	80K	120K	160K	200K	NOTE
DEVELOPMENT							
Developer (Y/M/C/Bk)			R		R		Y/M/C/Bk should be replaced all together.
Sleeve Roller Side Seals		C	C	C	C	C	Replace if damaged or wavy.
Development Unit Casing		C	C	C	C	C	Dry Cloth or vacuum cleaner (**CAUTION 1**)
Development Drive Gears		C	C	C	C	C	Blower Brush or vacuum cleaner
Toner Supply Receptacles, Toner Supply Joints		C	C	C	C	C	Dry Cloth or vacuum cleaner
Toner Tank Cover, Toner Bottle Guides		C	C	C	C	C	Dry Cloth or vacuum cleaner
Development Duct Lower Filter		C	C	C	C	C	Blower brush or vacuum cleaner Replace if necessary. (**NOTE 1**)
Development Filter		R	R	R	R	R	(**NOTE 1**)
Development Ozone Filter		R	R	R	R	R	(**NOTE 1**)
Development Exhaust Fan Filters		R	R	R	R	R	(**NOTE 1**)
AROUND THE DRUM							
Charge Corona Wire	C	C	R	C	R	C	Clean with dry cloth.
Charge Corona Grid	C	C	R	C	R	C	Blower brush, water, then dry cloth (**CAUTION 2**)
Charge corona casing	C	C	C	C	C	C	Wet cotton and dry cloth
Charge corona end blocks	C	C	C	C	C	C	Dry cloth
Quenching Lamp	C	C	C	C	C	C	Dry cloth
Drum Potential Sensor		C	C	C	C	C	Blower brush and dry cloth
ID Sensor		C	C	C	C	C	Dry cloth
Charge Inlet Fan Filter		R	R	R	R	R	(**NOTE 1**)
DRUM CLEANING							
Cleaning Blade		R	R	R	R	R	Dust with setting powder after replacement or cleaning.
Cleaning Brush		I	R	I	R	I	Inspect if the brush functions properly.

ITEM	EM	40K	80K	120K	160K	200K	NOTE
Bias Roller Blade		C	R	C	R	C	Dust with setting powder after replacement or cleaning.
Cleaning Bias Roller			C		C		Dry cloth or Alcohol Dust with setting powder.
Cleaning Side Seals, Casing		C	C	C	C	C	Dry Cloth
Cleaning Entrance Seal	I	C	C	C	C	C	Blower brush and dry cloth Replace if it is wavy.
PCC Wire	C	C	R	C	R	C	Dry cloth
PCC Casing	C	C	C	C	C	C	Water and dry cloth
PCC End Blocks	C	C	C	C	C	C	Dry cloth
TRANSFER BELT / TRANSFER ROLLER							
Transfer Belt		R	R	R	R	R	Perform SP208 (Belt Cleaning) after replacement.
Transfer Belt Unit Rollers		C	C	C	C	C	Alcohol
Transfer Belt Release Cams		L	L	L	L	L	Silicone Grease G40M (**NOTE 2**)
Belt Bias Roller Shaft		L	L	L	L	L	Silicone Grease G40M (**NOTE 2**)
Transfer Roller	I	I	I	I	I	I	Replace if the surface is damaged.
Transfer Roller Shaft		L	L	L	L	L	Silicone Grease G40M (**NOTE 3**)
Transfer Roller Blade			R		R		
Toner Catch Pan		C	C	C	C	C	
Transfer Roller Entrance Seal		C	C	C	C	C	Dry Cloth
Paper Discharge Plate		R	R	R	R	R	
TRANSFER BELT CLEANING							
Cleaning Blade		R	R	R	R	R	Dust with setting powder after replacement.
Cleaning Entrance Seal	I	C	C	C	C	C	Replace if damaged or wavy.
Cleaning Side Seals		C	C	C	C	C	
Toner Catch Seals		C	C	C	C	C	
Cleaning Unit Casing		C	C	C	C	C	Dry cloth

ITEM	EM	40K	80K	120K	160K	200K	NOTE
Lubricant Brush		I	I	R	I	I	Replace with the lubricant bar.
Lubricant Bar		I	I	R	I	I	Replace if damaged or worn (holes, dents, or, less than 0.5 mm overlap of the brush over the bar).
Lubricant Brush Guide Rollers		C	C	C	C	C	Dry cloth (**NOTE 4**)
Lubricant Brush Bracket		C	C	C	C	C	Remove the brush and clean with dry cloth. (**NOTE 4**)
Lubricant Brush Entrance Seal		C	C	C	C	C	(**NOTE 4**)
FUSING UNIT							
Hot Roller		R	R	R	R	R	(**NOTE 5**)
Heat Isolating Bushing		L	L	L	L	L	Barrierta L55/2 (**NOTE 5**)
Hot Roller Ball Bearing		C	C	C	R	C	Clean with dry cloth. (**NOTE 5**)
Pressure Roller, Pressure Roller Ball Bearing					R		Barrierta L55/2 (**NOTE6**)
Oil Blade		C	R	C	R	C	Suitable solvent Apply silicone oil on the edge after cleaning or replacement.
Oil Supply Pad		R	R	R	R	R	
Oil Sump					C		Dry cloth and alcohol
Hot Roller Stripper		C	C	C	C	C	Suitable solvent Apply silicone oil on the top after cleaning.
Fusing Thermistor, Pressure Roller Thermistor		C	C	C	C	C	Suitable solvent Apply silicone oil on the surface after cleaning.
Oil Tank		I	C/L	I	C/L	C/L	Add silicone oil after removing paper dust with a pipette.
Fusing Drive Gears			L		L		Mobil Temp. 1 or 78 (**NOTE 5**)
Cleaning Roller, Cleaning Roller Scraper		C	C	C	C	C	Suitable solvent

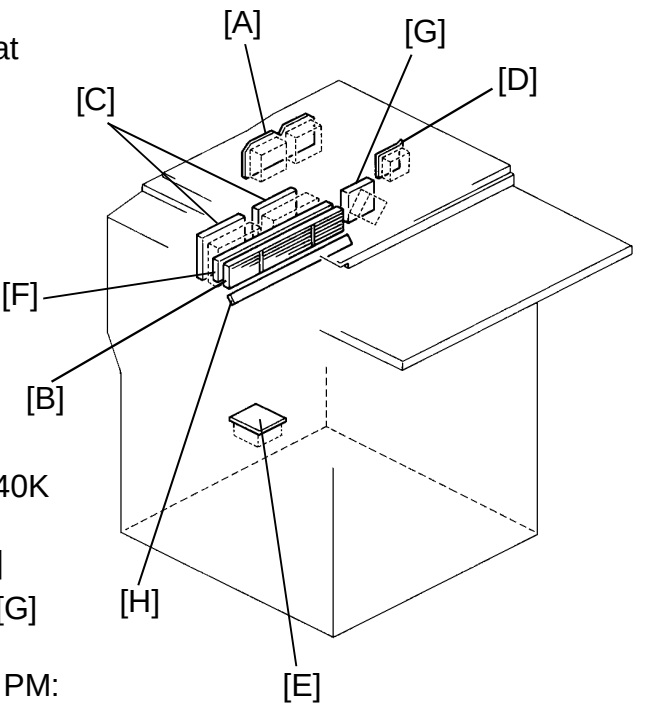
ITEM	EM	40K	80K	120K	160K	200K	NOTE
OTHERS							
Transport Belts		C	C	C	C	C	Alcohol
Toner Collection Bottle	I	C	C	C	C	C	Clean at EM if necessary.
Fusing Exhaust Ozone Filter		R	R	R	R	R	(**NOTE 1**)
Inner Cooling Fan Filter		R	R	R	R	R	(**NOTE 1**)
OPTIONAL EQUIPMENTS							
DUAL JOB FEEDER (A376) (Number of Originals)							
Transport Belt	C	C	C	R	C	C	Belt cleaner Replace if necessary.
Pick-up Roller	C	C	C	C	C	C	Alcohol Replace if necessary.
Feed Roller	C	C	C	R	C	C	Alcohol Replace if necessary.
Separation Belts	C	C	C	R	C	C	Alcohol Replace if necessary.
SORTER (A511) (Number of Copies)							
Transfer Rollers	C	C	C	C	C	C	Alcohol
Exit Rollers	C	C	C	C	C	C	Alcohol
Gears and Bushings	(L)	(L)	(L)	(L)	(L)	(L)	Lubricate if noisy.

CAUTION 1: When cleaning the development unit with a vacuum cleaner, always ground the casing with your fingers to avoid damaging the toner density sensor with static electricity.

CAUTION 2: When cleaning and drying the charge corona grid with cloth, be careful not to damage the grids by letting them catch fibers.

NOTE 1: Filters

The location of the filters which should be cleaned or replaced at PM is shown to the right.

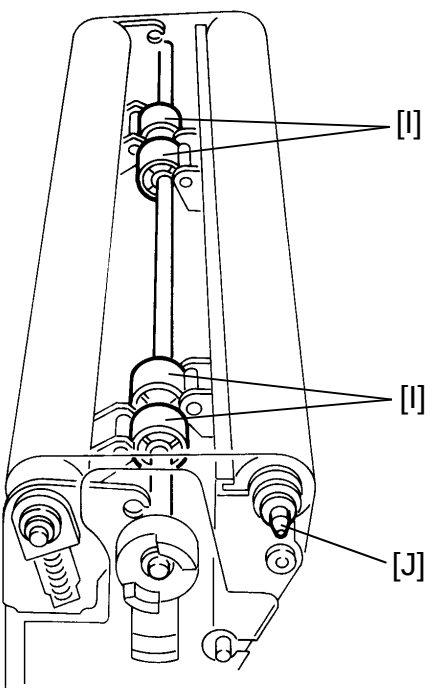


1) Dust filters to be replaced at 40K PM:
   - Optics cooling fan filter [A]
   - Development filter [B]
   - Development exhaust fan filters [C]
   - Charge inlet fan filter [D]
   - Inner cooling fan filter [E]
2) Ozone filters to be replaced at 40K PM:
   - Development ozone filter [F]
   - Fusing exhaust ozone filter [G]

3) Dust filter to be cleaned at 40K PM:
   - Development duct lower filter [H]

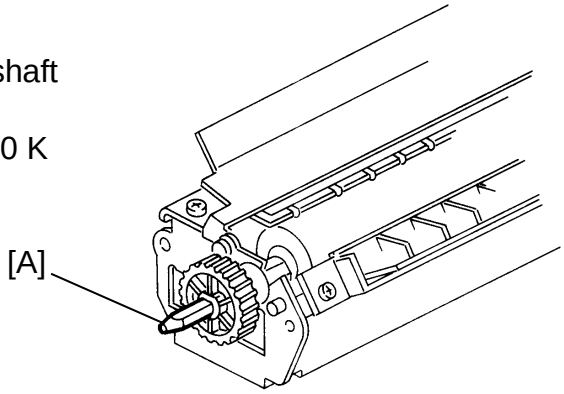
NOTE 2: Transfer Belt Unit

The following parts should be lubricated with silicone grease G40M every 40K scans:
- Transfer belt release cams [I]
- Belt bias roller shaft [J] (only at the end)



NOTE 3: Transfer Roller Unit

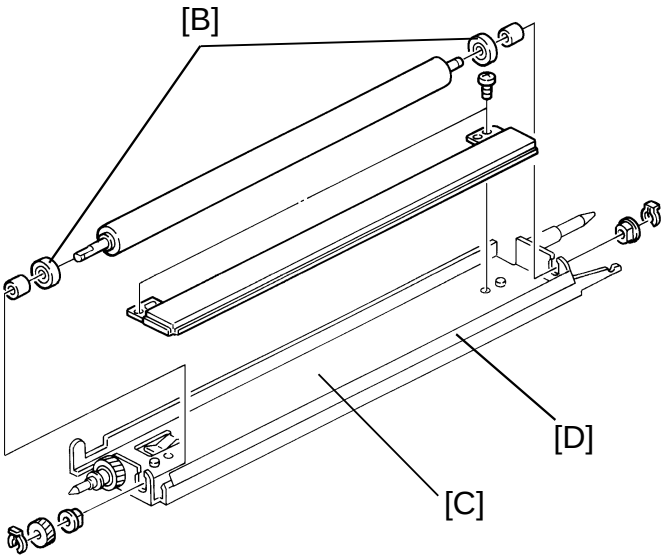
The end of the transfer roller shaft [A] should be lubricated with silicone grease G40M every 40 K scans.



NOTE 4: Lubricant Brush U

The following parts should cleaned every 40K scans:

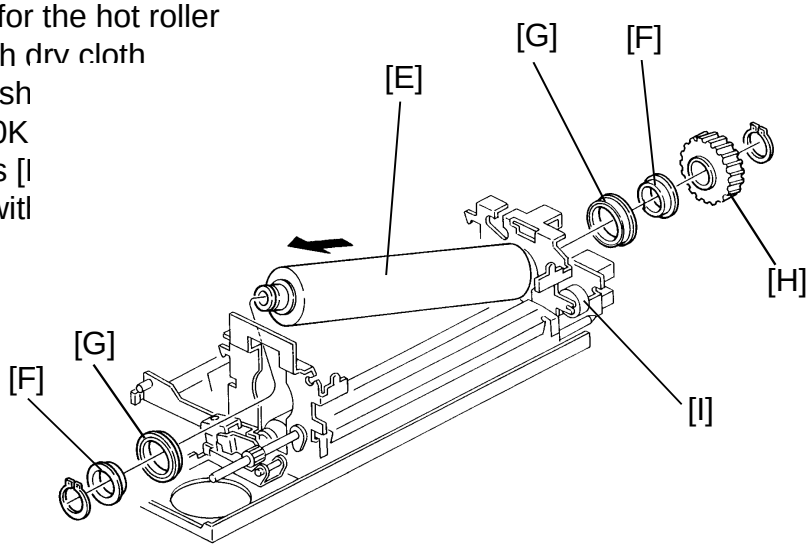
- Lubricant brush guide rollers [B]
- Lubricant brush bracket [C]
- lubricant brush entrance seal [D]



NOTE 5: Fusing Unit 1

When replacing the hot roller [E] every 40K scans, lubricate the inner and outer surface of the heat isolating bushings [F] with Barrierta L55/2.

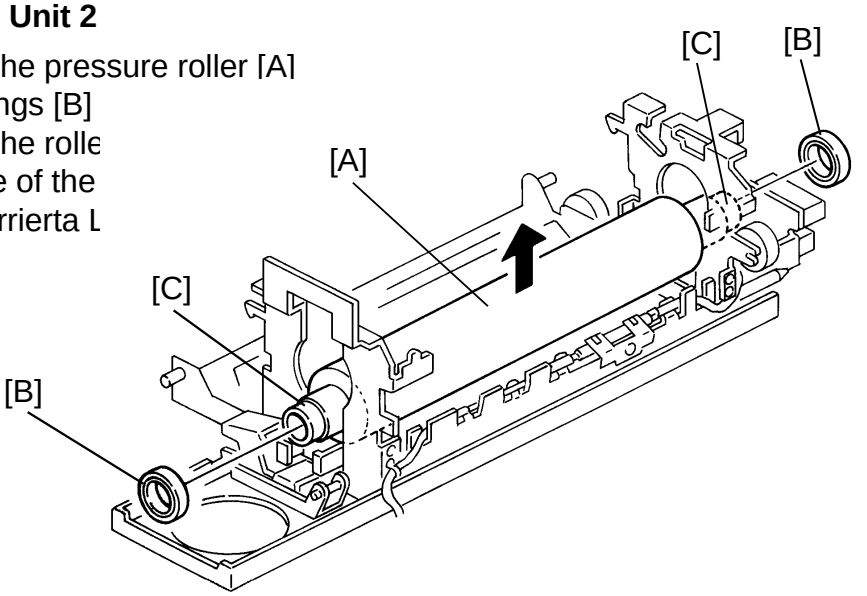
The ball bearings [G] for the hot roller should be cleaned with dry cloth every 40K scans and sh be replaced every 160K The fusing drive gears [I should be lubricated witl Mobil Temp. 1 or 78 every 80K scans.



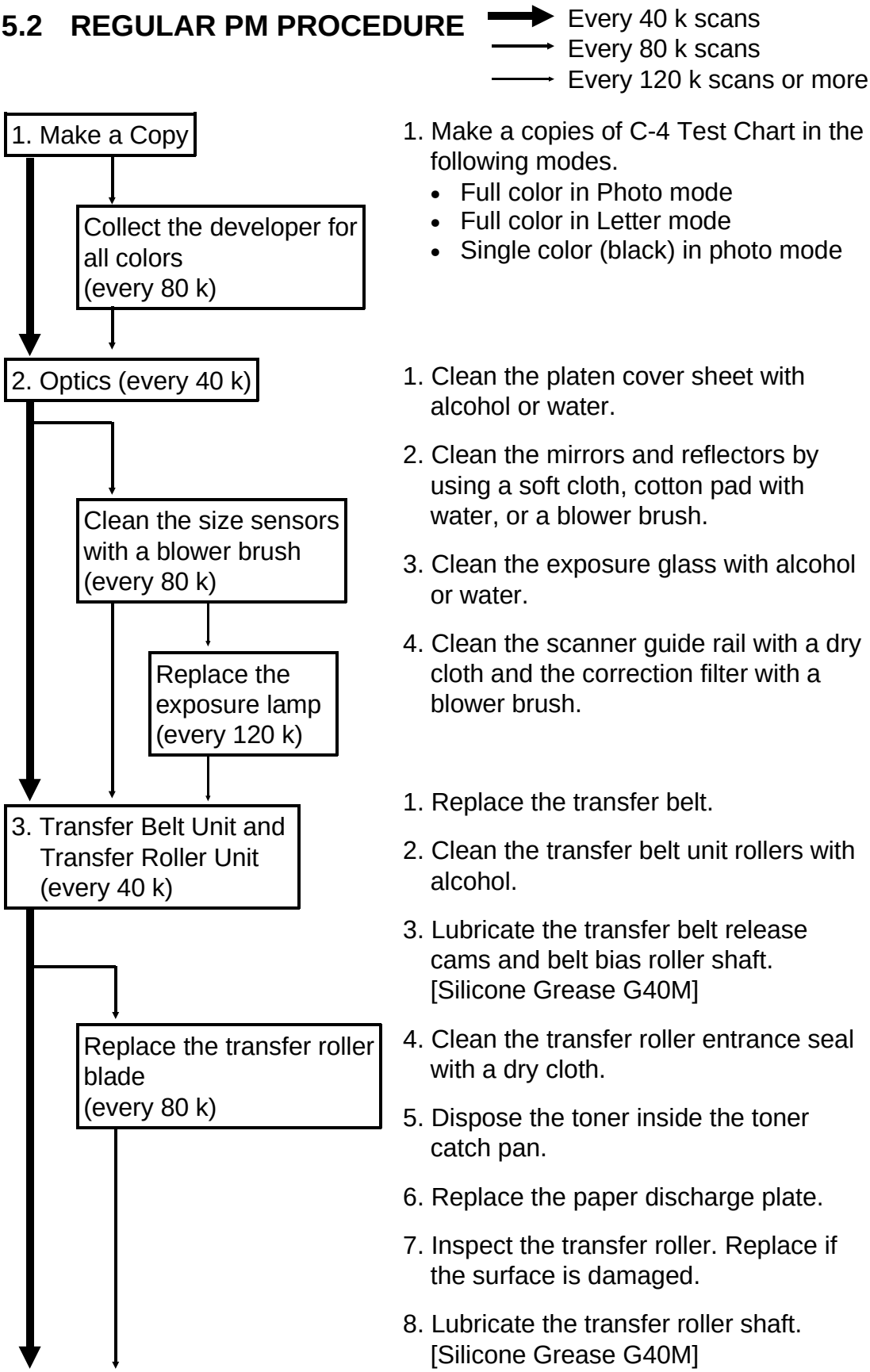
Service Tables

NOTE: 6 Fusing Unit 2

When replacing the pressure roller [A] and its ball bearings [B] scans, lubricate the rolle and inner surface of the bearings with Barrierta L



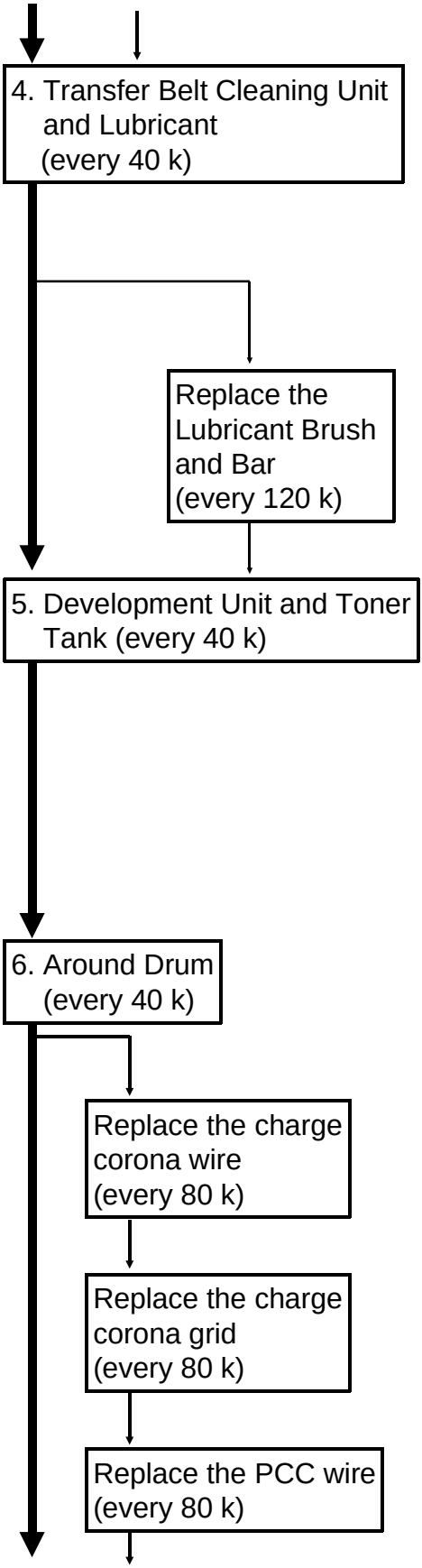
5.2 REGULAR PM PROCEDURE


Every 40 k scans
Every 80 k scans
Every 120 k scans or more
1. Make a Copy
Collect the developer for all colors (every 80 k)
2. Optics (every 40 k)
Clean the size sensors with a blower brush (every 80 k)
Replace the exposure lamp (every 120 k)
3. Transfer Belt Unit and Transfer Roller Unit (every 40 k)
Replace the transfer roller blade (every 80 k)

1. Make a copies of C-4 Test Chart in the following modes.
   - Full color in Photo mode
   - Full color in Letter mode
   - Single color (black) in photo mode

1. Clean the platen cover sheet with alcohol or water.
2. Clean the mirrors and reflectors by using a soft cloth, cotton pad with water, or a blower brush.
3. Clean the exposure glass with alcohol or water.
4. Clean the scanner guide rail with a dry cloth and the correction filter with a blower brush.

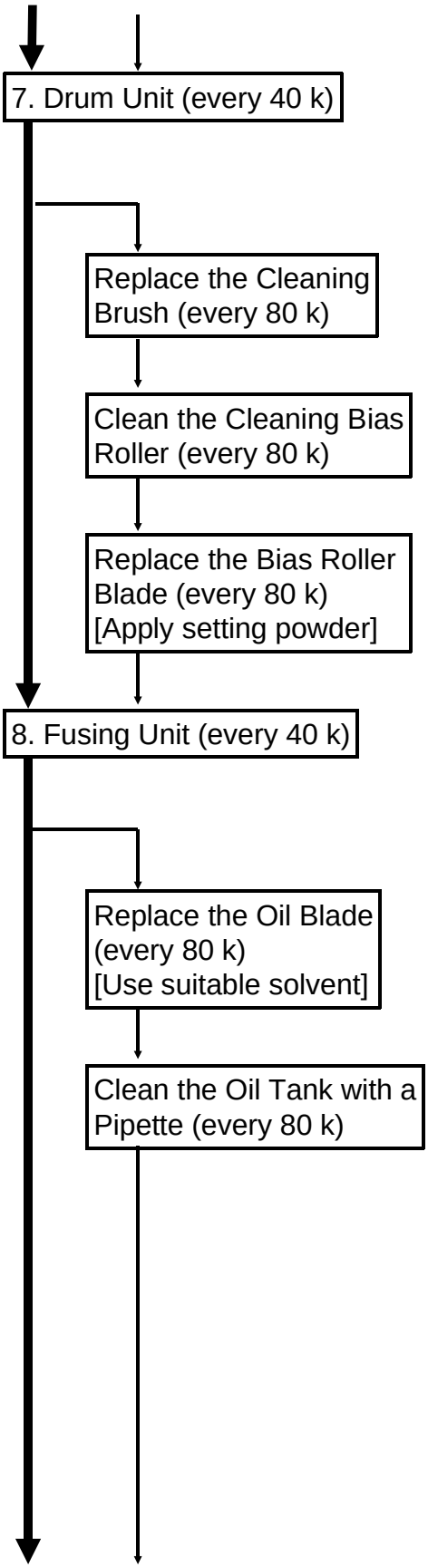
1. Replace the transfer belt.
2. Clean the transfer belt unit rollers with alcohol.
3. Lubricate the transfer belt release cams and belt bias roller shaft. [Silicone Grease G40M]
4. Clean the transfer roller entrance seal with a dry cloth.
5. Dispose the toner inside the toner catch pan.
6. Replace the paper discharge plate.
7. Inspect the transfer roller. Replace if the surface is damaged.
8. Lubricate the transfer roller shaft. [Silicone Grease G40M]


4. Transfer Belt Cleaning Unit and Lubricant (every 40 k)
Replace the Lubricant Brush and Bar (every 120 k)
5. Development Unit and Toner Tank (every 40 k)
6. Around Drum (every 40 k)
Replace the charge corona wire (every 80 k)
Replace the charge corona grid (every 80 k)
Replace the PCC wire (every 80 k)

1. Replace the cleaning blade.
2. Clean the entrance seal. Replace if damaged or wavy.
3. Clean the side seals and toner catch seals.
4. Clean the unit's casing with a dry cloth.
5. Inspect the lubricant brush and bar.
6. Clean the lubricant brush guide rollers, lubricant brush bracket and lubricant brush entrance seal with a dry cloth.

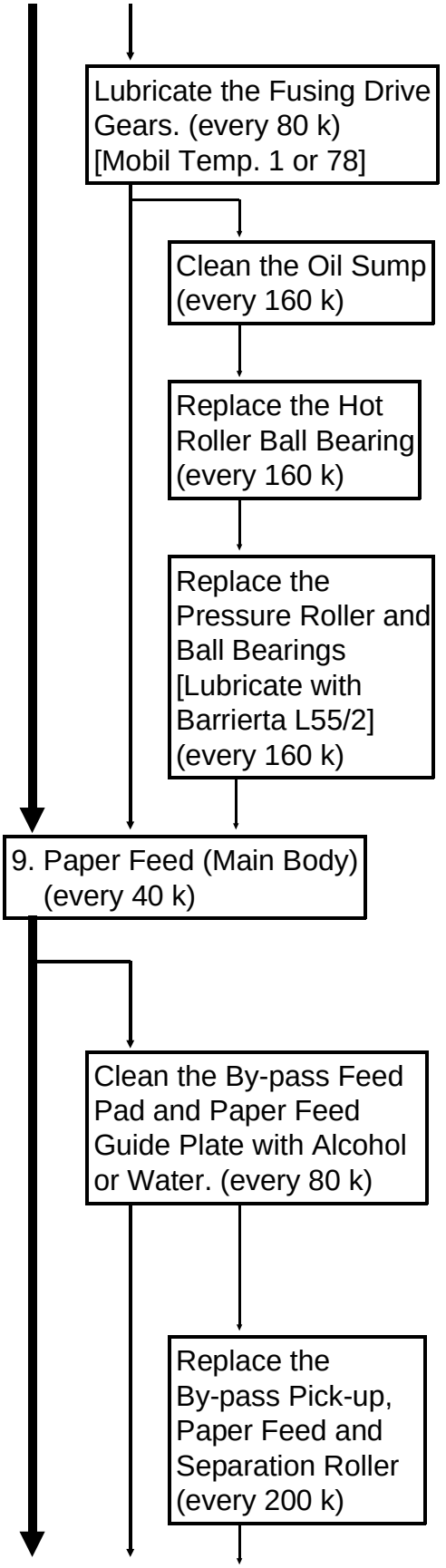
1. Clean the casings, drive gears, toner supply receptacles, toner supply joints and toner bottle guides with a vacuum cleaner or dry cloth.
2. Clean the sleeve side seals with dry cloth. Replace if damaged or wavy.
3. Clean the development duct lower filter with a blower brush or vacuum cleaner.

1. Clean the charge corona wire, grid, casing, and end blocks.
2. Clean the quenching lamp and ID sensor.
3. Clean the PCC wire, casing and end blocks.

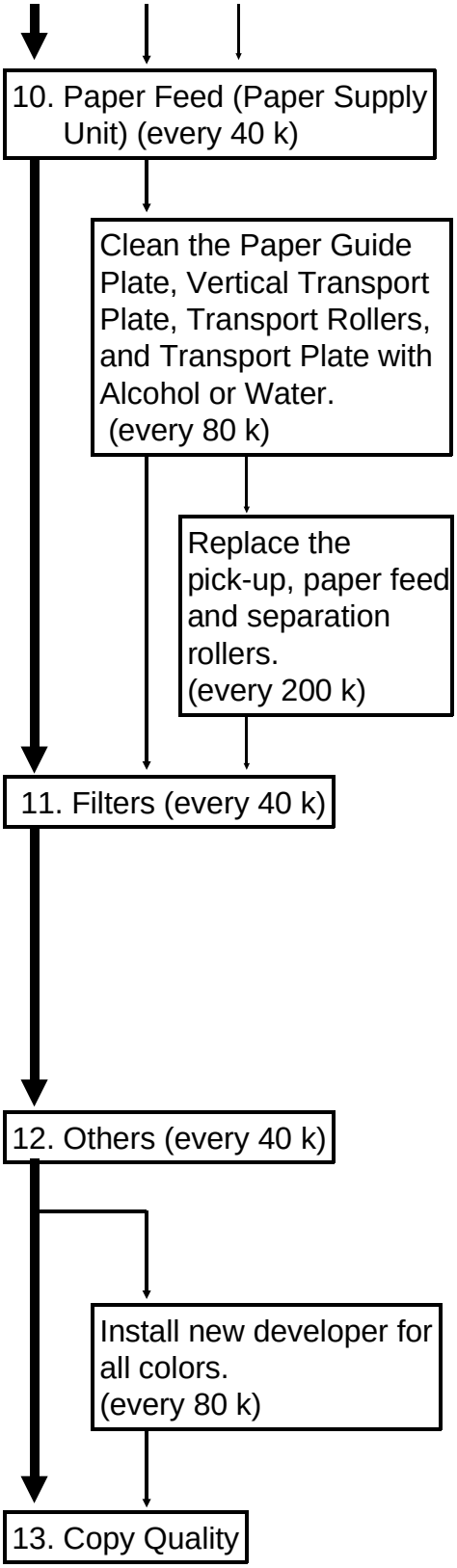

7. Drum Unit (every 40 k)
Replace the Cleaning Brush (every 80 k)
Clean the Cleaning Bias Roller (every 80 k)
Replace the Bias Roller Blade (every 80 k) [Apply setting powder]
8. Fusing Unit (every 40 k)
Replace the Oil Blade (every 80 k) [Use suitable solvent]
Clean the Oil Tank with a Pipette (every 80 k)

1. Remove the used drum and replace the cleaning blade. [Apply setting powder]
2. Inspect if the cleaning brush functions properly.
3. Clean the bias roller blade.
4. Clean the cleaning side seals, casing and entrance seal.
5. Install a new drum. [Apply setting powder]

1. Replace the oil supply pad.
2. Clean the fusing thermistor. [Apply silicone oil on surface]
3. Clean the oil blade. [Use suitable solvent]
4. Replace the hot roller.
5. Lubricate the heat isolating busings. [Barrierta L55/2]
6. Clean the hot roller ball bearings.
7. Clean the hot roller stripper. [Apply silicone oil on surface]
8. Clean the pressure roller thermistor. [Apply silicone oil on surface]
9. Clean the hot roller cleaning roller and scraper. [Use suitable solvent]
10. Inspect the amount of silicone oil in the tank. Add oil if necessary.


Lubricate the Fusing Drive Gears. (every 80 k) [Mobil Temp. 1 or 78]
Clean the Oil Sump (every 160 k)
Replace the Hot Roller Ball Bearing (every 160 k)
Replace the Pressure Roller and Ball Bearings [Lubricate with Barrierta L55/2] (every 160 k)
9. Paper Feed (Main Body) (every 40 k)
Clean the By-pass Feed Pad and Paper Feed Guide Plate with Alcohol or Water. (every 80 k)
Replace the By-pass Pick-up, Paper Feed and Separation Roller (every 200 k)

1. Clean the registration rollers and relay rollers with alcohol.
2. Clean the by-pass pick-up, paper feed and separation roller with water.
3. Clean the registration sensor with a blower brush.


10. Paper Feed (Paper Supply Unit) (every 40 k)
Clean the Paper Guide Plate, Vertical Transport Plate, Transport Rollers, and Transport Plate with Alcohol or Water. (every 80 k)
Replace the pick-up, paper feed and separation rollers. (every 200 k)
11. Filters (every 40 k)
12. Others (every 40 k)
Install new developer for all colors. (every 80 k)
13. Copy Quality

1. Clean the pick-up, paper feed and separation rollers with water.
2. Clean the tray bottom plate pad with alcohol or water.

1. Replace the following filters.
   - Optics cooling fan filter.
   - Development filter.
   - Development ozone filter.
   - Inner cooling fan filter.
   - Optics cooling fan filters.
   - Charge inlet fan filter.
   - Fusing exhaust ozone filter.

1. Clean the transport belts with alcohol.
2. Dispose the used toner in the toner collection bottle.

- Perform SP2-5, No. 207 (Toner Density Initial Setting) and other procedures.

NOTE: The process control self check will be performed whenever the machine is turned on while the hot roller temperature is below 100°C.

SECTION 5

REPLACEMENT AND ADJUSTMENT

1. COLOR BALANCE ADJUSTMENT

NOTE: a) Check the color balance at every call, or after replacing the OPC drum, or the developer.

b) Always adjust the color balance using only the "OFF SET" keys. Do not change the factory settings in the "STEP" keys.

c) Entering a larger setting for "OFF SET" will make the copy image darker.

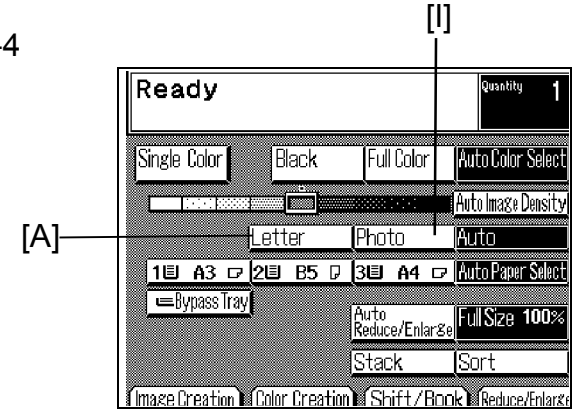
d) The "OFF SET" setting for each ID level must be within the range defined below. (Entering a greater number is the same as entering the maximum number in the range.)

OFF SET SETTING

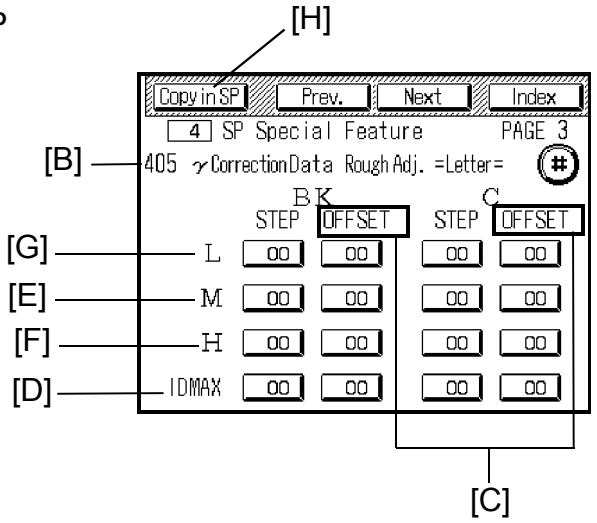
H L	0 ~ 20
M	0 ~ 30
ID MAX	0 ~ 10

e) For more detailed information concerning the access of SP modes, refer to section 4 (Service Program Mode Operation).

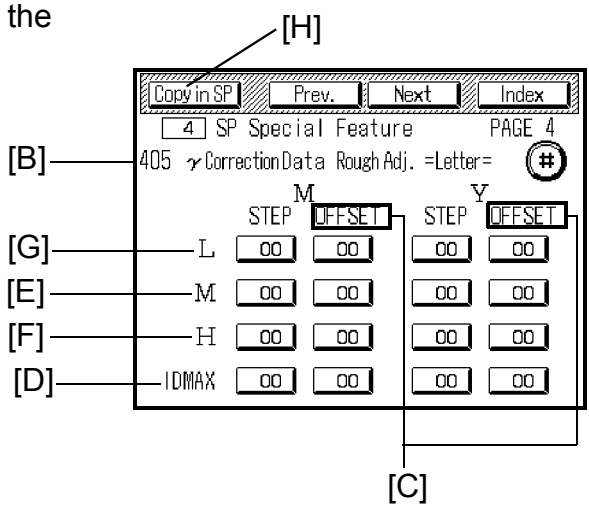
1. Take a full color copy using the C-4 test chart in letter mode [A].



2. Enter the SP mode and open SP Special Feature P-3, No. 405 (γ Correction Data Rough Adj. "Letter") [B].



3. Checking the copy image, adjust the "OFF SET" [C] settings for each image density (ID) by referring to the following table.



— STANDARD COPY QUALITY IN LETTER MODE —

Step No.	Key to Adjust	Level to Refer on the C-4 Chart	Adjustment Standard
1	ID MAX [D] for each color	1 2 3 4 5 6 7 8 9 10 ↑ 10th level of the color scale	Adjust the ID of the 10th level to the same value as the C-4 test chart.
2	MIDDLE ID [E] for each color	1 2 3 4 5 6 7 8 9 10 ↑ 5th level of the color scale	Adjust the ID of the 5th level to the same value as the C-4 test chart.
3	HIGH ID [F] for each color	1 2 3 4 5 6 7 8 9 10 ↑ 8th level of the color scale	Adjust the ID of the 8th level to the same value as the C-4 test chart.
4	LOW ID [G] for each color	1 2 3 4 5 6 7 8 9 10 ↑ 2nd and 3rd level of the color scale	Adjust the ID so that the 2nd level is not visible, and the 3rd level is the same value as the C-4 test chart.

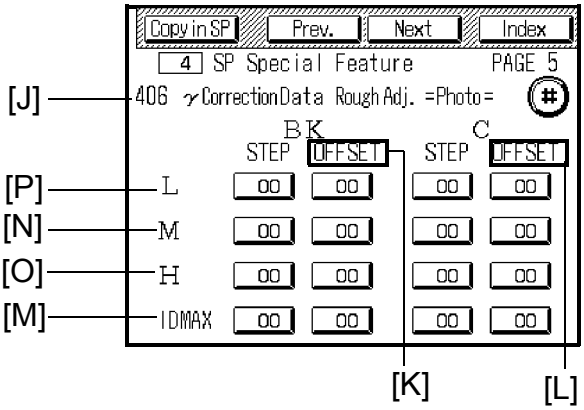
NOTE: If the customer tends to use the "3 COLOR" mode in the user tools frequently, perform the following color balance adjustment.

1) Enter the User Tools.
2) Open Sensitivity Adjustment "Color Mode" and select "3C".
3) Exit the User Tools and take a full color copy in the letter mode.
4) Adjust the black scale level 3 to 5 (LOW ID) by combining cyan, magenta, and yellow ID's to an acceptable shade of grey.

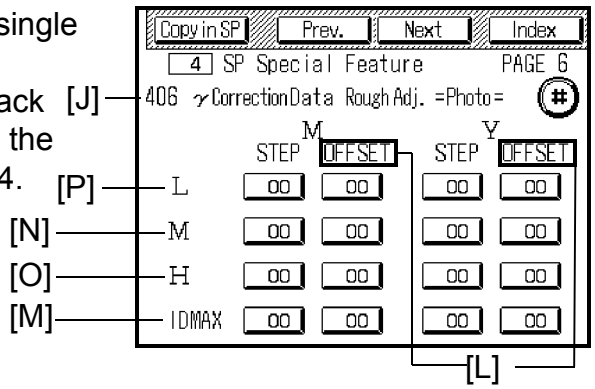
4. Touch the Copy in SP key [H] and select the photo mode [I].

5. Take a single color copy (black) and a full color copy using the C-4 test chart.

6. Touch the SP Modes key and open P-5, No. 406 (γ Correction Data Rough Adj. "Photo") [J].

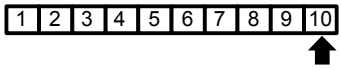
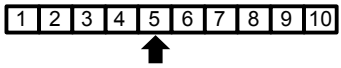
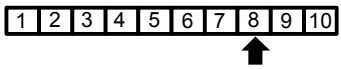
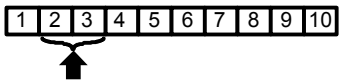
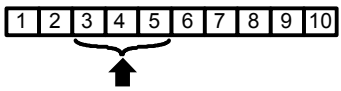


7. Checking the copy image of the single color copy (black), adjust the "OFF SET" [K] settings for the black image density (ID) by performing the following table step number 1 to 4.



8. Checking the copy image of the full color copy, adjust the "OFF SET" [L] settings for the Cyan, Magenta, and Yellow ID by performing the following table (all steps).

— STANDARD COPY QUALITY PHOTO MODE —

Step No.	Key to Adjust	Level to Refer on the C-4 Chart	Adjustment Standard
1	ID MAX [M] for each color	 10th level of the color scale	Adjust the ID of the 10th level to the same value as the C-4 test chart.
2	MIDDLE ID [N] for each color	 5th level of the color scale	Adjust the ID of the 5th level to the same value as the C-4 test chart.
3	HIGH ID [O] for each color	 8th level of the color scale	Adjust the ID of the 8th level to the same value as the C-4 test chart.
4	LOW ID [P] for each color	 2nd and 3rd level of the color scale	Adjust the ID so that the 2nd level is slightly (just) visible and the 3rd level is the same as the C-4 test chart.
5	Low ID [P] of Y, M, C	 3rd, 4th, and 5th level of the black scale	The levels should be an acceptable shade of grey.

2. COPY IMAGE ADJUSTMENT - PRINTING/SCANNING

NOTE: a) When performing this adjustment, always bring the "Factory Set Data" sheet with you.

b) Always perform this adjustment after replacing the following parts.

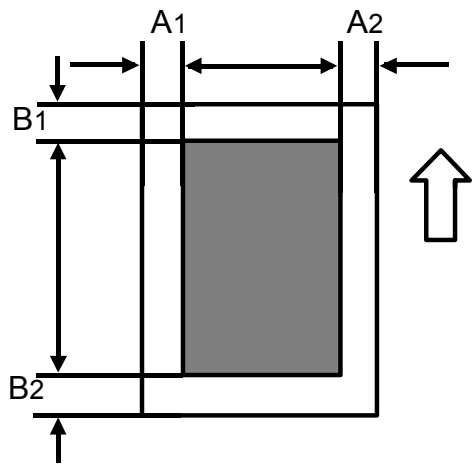
- Scanner Wire
- Optical Housing Unit
- Lens Unit
- Polygon Motor
- LD Unit
- Scanner Motor
- etc.

c) For more detailed information concerning the access of SP modes, refer to section 4 (Service Program Mode Operation).

d) The following procedures must be performed when 3 Side Full Image (User Tools No.2) is "OFF".

2.1 PRINTING

Registration Adjustment Standard Copy Image (Blank Margins = O)

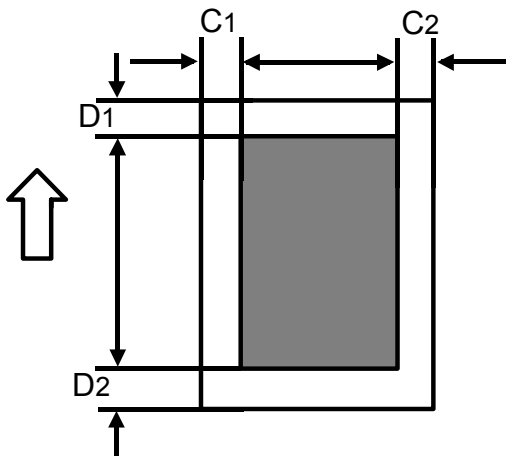


$A_1 = A_2$

B_1 : 2 ± 2 (mm), $0.08" \pm 0.08"$

B_2 : No Standard

(Registration + Blank Margin) Adjustment Standard Copy Image



C_1 : 2 ± 2 (mm), $0.08" \pm 0.08"$

C_2 : 2 ± 2 (mm), $0.08" \pm 0.08"$

$C_1 + C_2$: 4 (mm), 0.16" or less

D_1 : 5 ± 2 (mm), $0.2" \pm 0.08"$

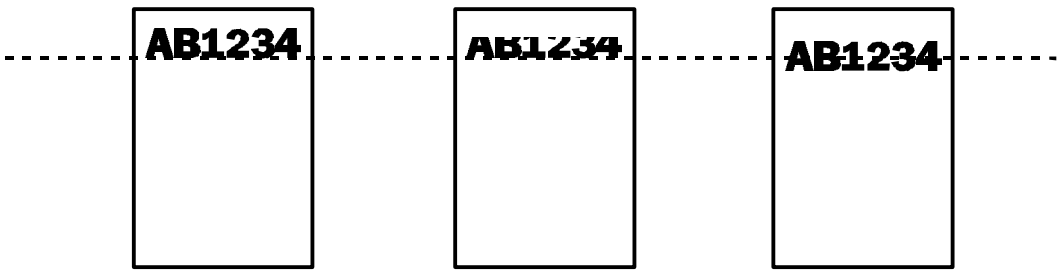
D_2 : 2 ± 2 (mm), $0.08" \pm 0.08"$

Replacement Adjustment

– 3rd Paper Tray (Normal Paper) –

1. Take a single color copy (black) of the C-4 test chart using A3 or 11" x 17" paper from the 3rd paper tray.
2. By comparing the copy image to the C-4 test chart, determine whether the registration or the blank margin is out of standard (causing the faulty copy image).

(Example)



- Original -
- Faulty Lead Edge Blank Margin
- Faulty Lead Edge Registration

If the registration is within standard, go to step 11 and adjust the blank margin.

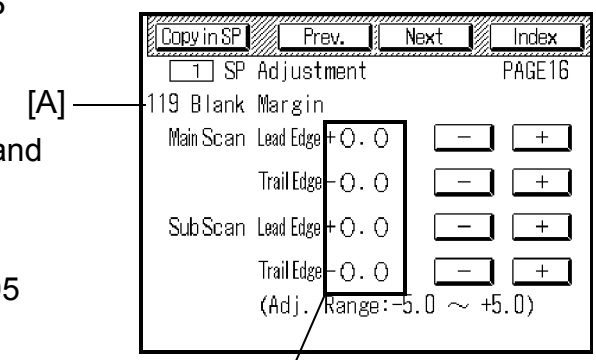
2.1.1 Registration Adjustment

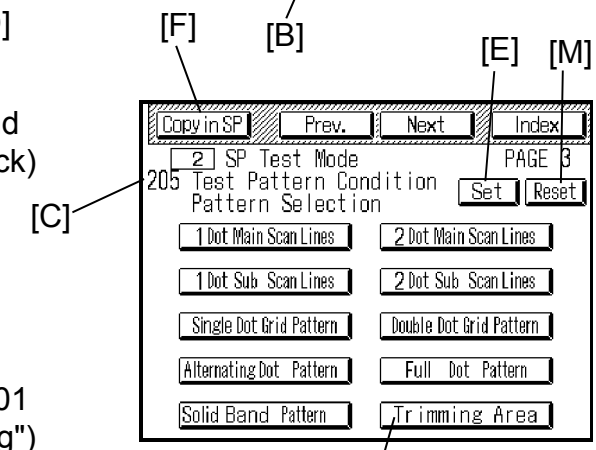
3. Enter the SP mode and open SP Adjustment P-16, No. 119 (Blank Margin) [A].
4. Make a note of current settings and enter "O" for all the settings in the page [B] for now.
5. Open SP Test Mode P-3, No. 205 (Test Pattern Condition) [C].
6. Touch the Trimming Area key [D] and touch the Set key [E].
7. Touch the Copy in SP key [F] and confirm that the single color (black) mode and the 3rd paper tray is selected.
8. Press the start key and print out the trimming area test pattern.
9. Open SP Adjustment P-1, No. 101 (Lead Edge Registration "Printing") [G] and adjust the lead edge registration (B1) to meet the standard copy image by changing the setting [H].

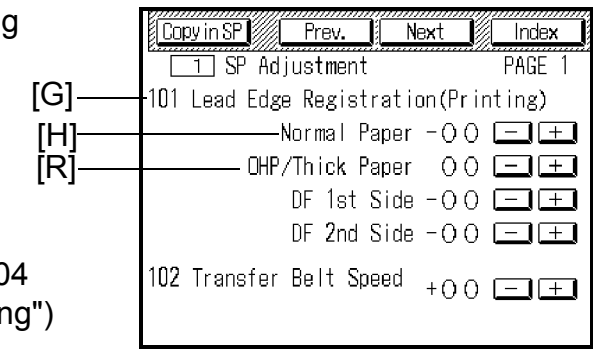
   NOTE: Copy image will shift up when entering greater setting. (0.5 mm/bit)

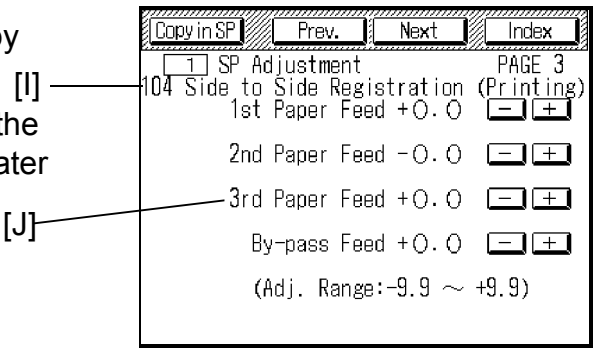
10. Open SP Adjustment P-3, No. 104 (Side to Side Registration "Printing") [I] and adjust the side-to-side registration to meet the standard copy image (A1 = A2) by changing the setting [J].

    NOTE: Copy image will shift to the left when entering a greater setting. (0.1 mm/bit)





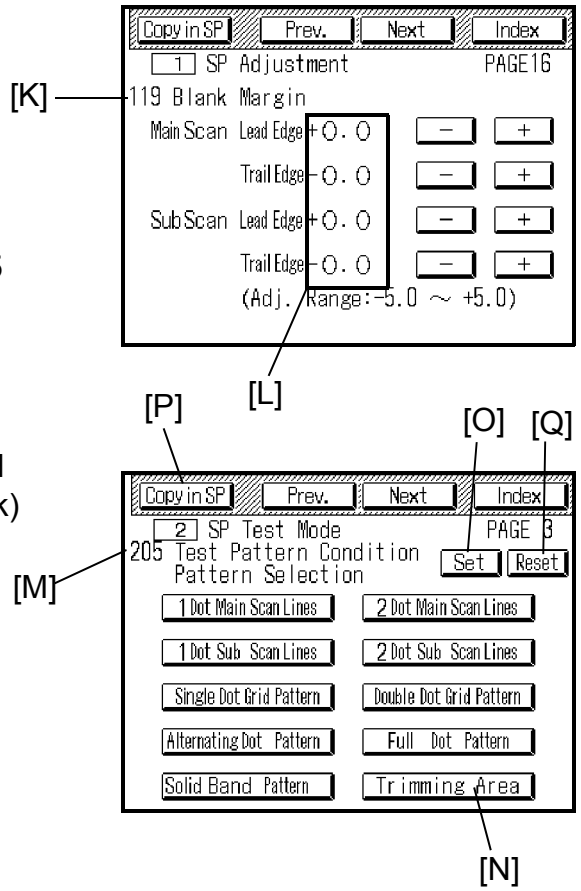




Replacement Adjustment

2.1.2 Blank Margin Adjustment

11. Open SP Adjustment P-16, No. 119 (Blank Margin) [K] and change the settings [L] from "O" to the factory set data or the previous settings.
12. Open SP Test Mode P-3, No. 205 (Test Pattern Condition) [M].
13. Touch the Trimming Area key [N] and touch the Set key [O].
14. Touch the Copy in SP key [P] and confirm that the single color (black) mode and the 3rd paper tray is selected.
15. Press the start key and print out the trimming area test pattern.
16. Adjust the blank margin of the 4 edges [L] to meet the registration plus blank margin adjustment standard copy image (C_1, C_2, C_1 + C_2, and D_1).



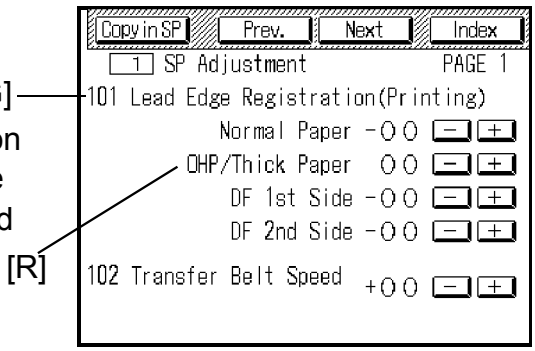
NOTE: The blank margin on the copy will increase when entering a greater setting.

17. Open SP Test Mode P-3, No. 205 [M] and touch the Reset key [Q].

– 1st, 2nd Paper Tray and By-pass Feed Table (Normal Paper) –

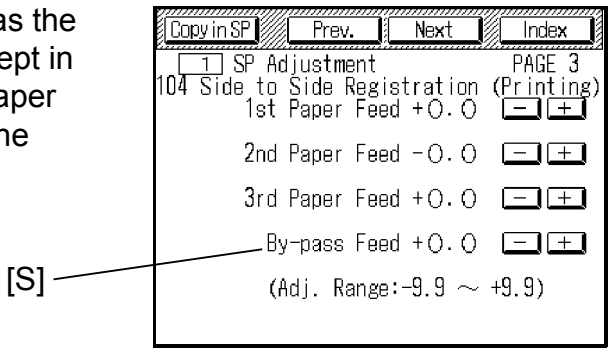
1. Perform the same procedures as the 3rd paper tray adjustments, but skip step 9.

   NOTE:
   - The lead Edge Registration "Printing" [G] setting is the same for all the paper feed units.
   - Select the desired paper feed unit in step 10.



– By-pass Feed Table (OHP/Thick Paper) –

1. Perform the same procedures as the 3rd paper tray adjustments except in step 9, select the OHP/Thick Paper key [R], and in step 10, select the By-pass Feed [S].

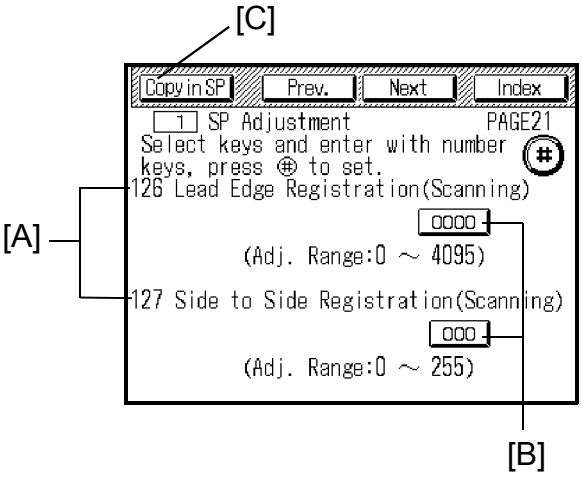


Replacement Adjustment

2.2 SCANNING

NOTE: Perform or check the "Registration plus Blank Margin Adjustment" (Printing) before the following scanning lead edge and side-to- side registration adjustments.

1. Enter the SP mode and open SP Adjustment P-21, No. 126 and 127 (Lead Edge Registration, Side to Side Registration - Scanning) [A].



2. Confirm that the both scanning registrations [B] are set at their factory settings. (Refer to the Factory Set Data Sheet of the machine.)

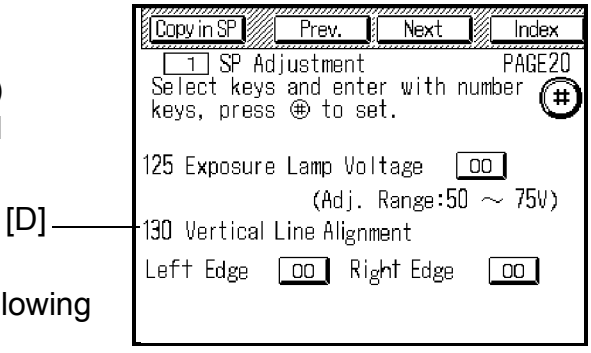
   NOTE: Normally the settings entered at the factory meets the standard copy image.

3. Touch the Copy in SP key [C] and take a full color copy of the C4 chart in photo mode.

Perform steps 4. to 6 for both sides of the test chart.

4. Check the vertical lines on the side of the test chart copy. Verify that the yellow and cyan lines overlap the black line. If they do not, continue with step 5, otherwise exit SP mode.

5. Touch the SP modes key and open SP Adjustment P-20, No. 130 (Vertical Line Alignment) [D]. Read the present setting and locate the setting on the graph (see next page).



6. Change the setting according to the graph on the next page by following these rules:

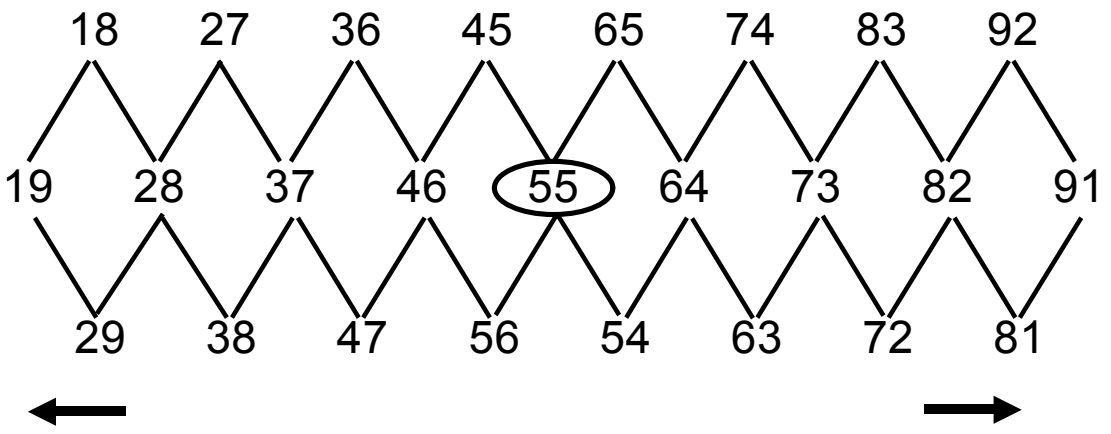
Case 1: Yellow line at left, cyan line at right of the black line.
Referring to the graph, choose one of the settings left of the present one.

- If only one of the two lines is visible, choose a setting on the middle line of the graph.
- If both lines are visible, but the cyan line is further from the black line, choose a setting on the top line.
- If both lines are visible, but the yellow line is further from the black line, choose a setting on the bottom line.

Case 2: Yellow line at right, cyan line at left of the black line.
Referring to the graph, choose one of the settings right of the present one.

- If only one of the two lines is visible, choose a setting on the middle line of the graph.
- If both lines are visible, but the cyan line is further from the black line, choose a setting on the top line.
- If both lines are visible, but the yellow line is further from the black line, choose a setting on the bottom line.

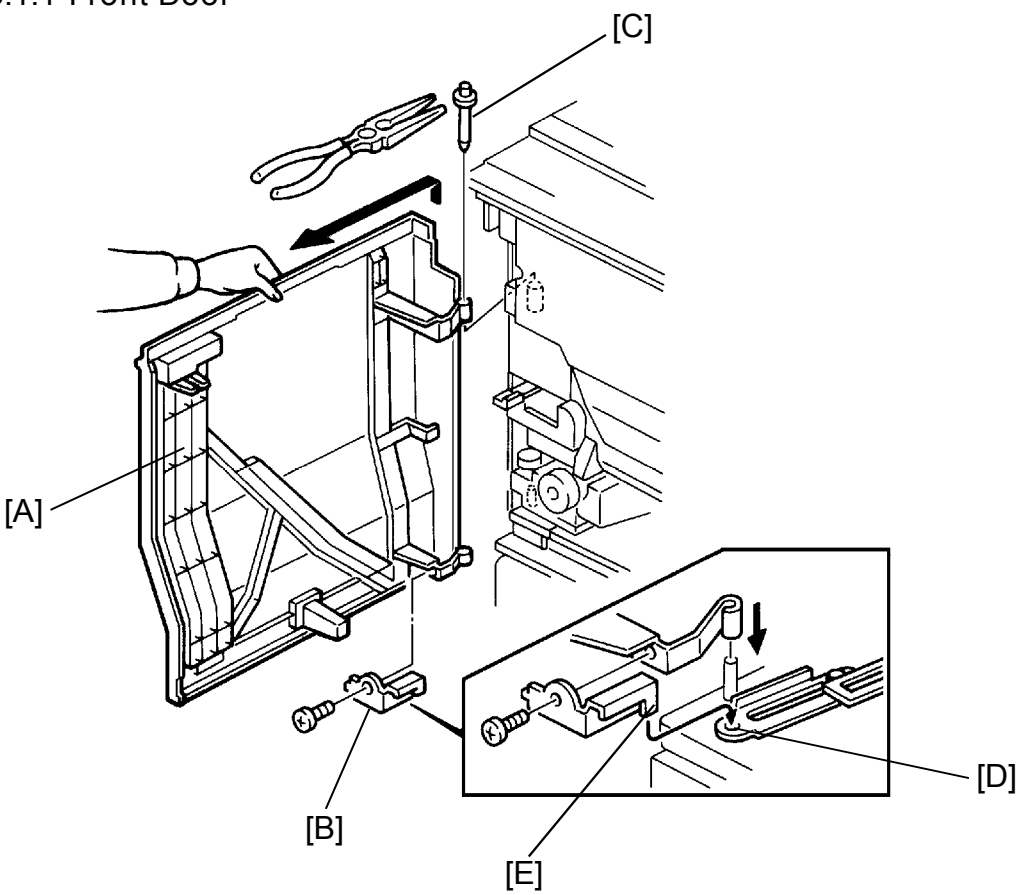
Vertical alignment settings (Default=55)



3. EXTERIOR AND INNER COVERS

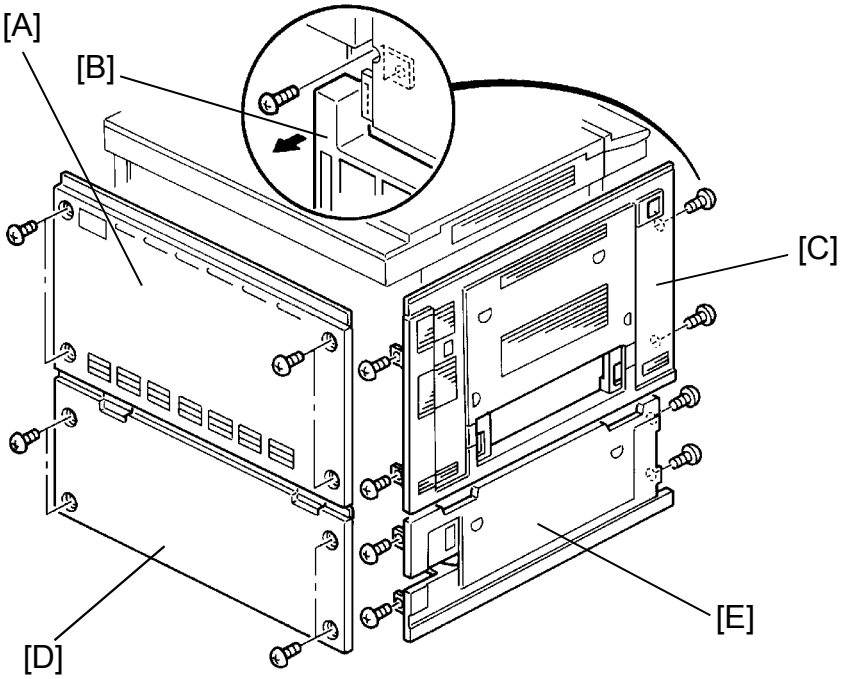
3.1 EXTERIOR COVER REMOVAL

3.1.1 Front Door



1. Open the front door [A].
2. Remove the fusing gear release bracket [B] (1 screw).
3. Pull out the pin [C].
4. Lift up and remove the front door [A].

NOTE: When re-installing, make sure that the gear release arm hole [D] meets the gear release bracket's pin [E].



3.1.2 Upper Rear Cover

1. Remove the upper rear cover [A] (4 screws).

3.1.3 Upper Left Cover

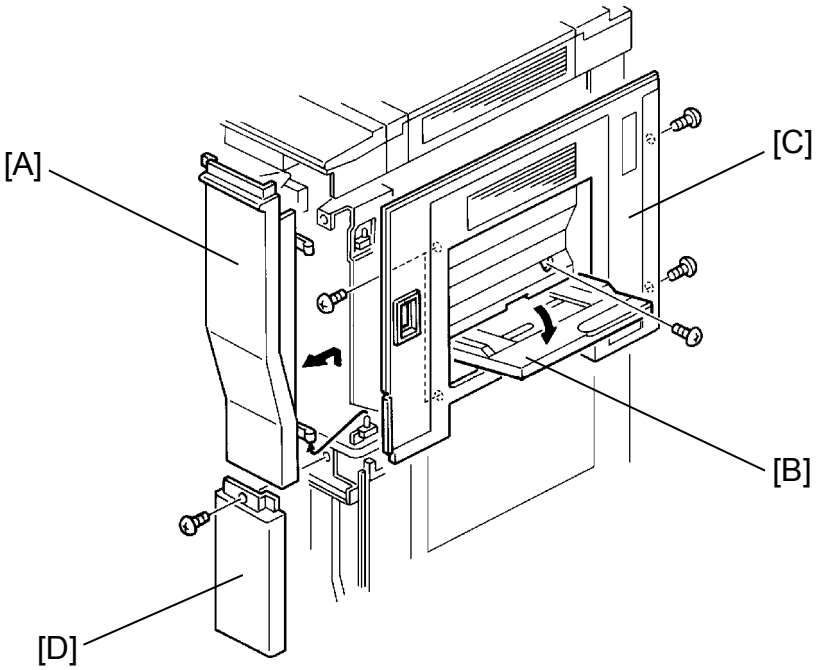
1. Open the front door and remove the total counter cover [B] (1 screw). (See Inner Cover Removal section.)
2. Remove the upper rear cover [A].
3. Remove the exit tray or the sorter. (See Sorter Section.)
4. Remove the left cover [C] (4 screws).

3.1.4 Lower Rear Cover

1. Remove the lower rear cover [D] (4 screws).

3.1.5 Lower Left Cover

1. Remove the lower rear cover [D].
2. Pull out all paper trays.
3. Remove the lower left cover[E] (4 screws).



3.1.6 Right Front Door

1. Open the front door and the right front door [A].
2. Remove the right inner cover (3 screws). (See Inner Cover Removal section.)
3. Remove the right front door [A].

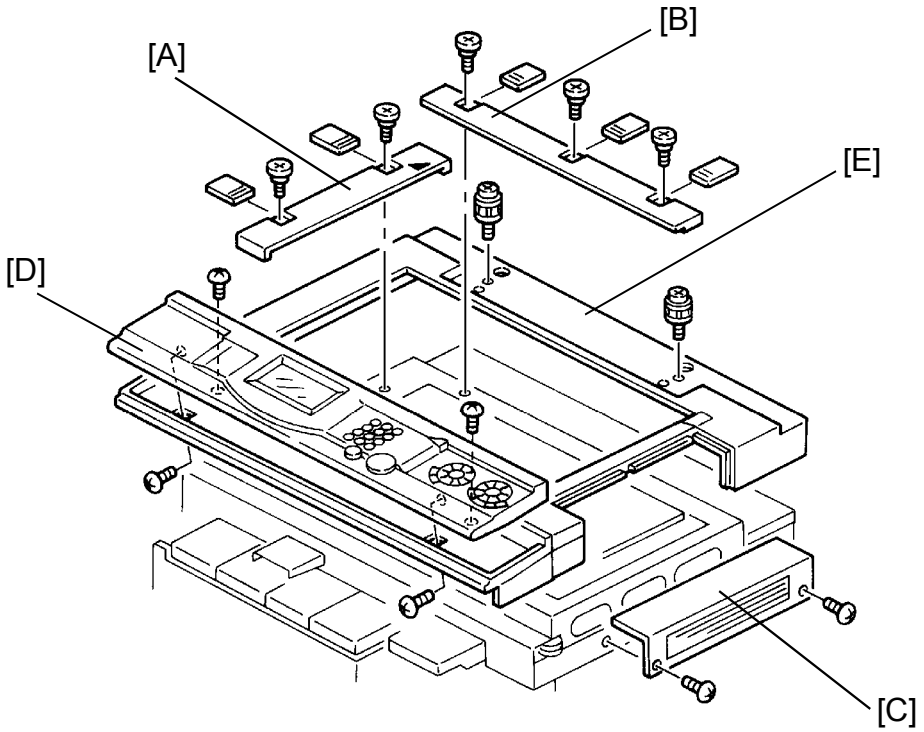
3.1.7 Upper Right Cover

1. Remove the right front door [A].
2. Remove the upper rear cover.
3. Push open the by-pass feed table [B].
4. Remove the upper right cover [C] (5 screws).

3.1.8 Lower Front Cover

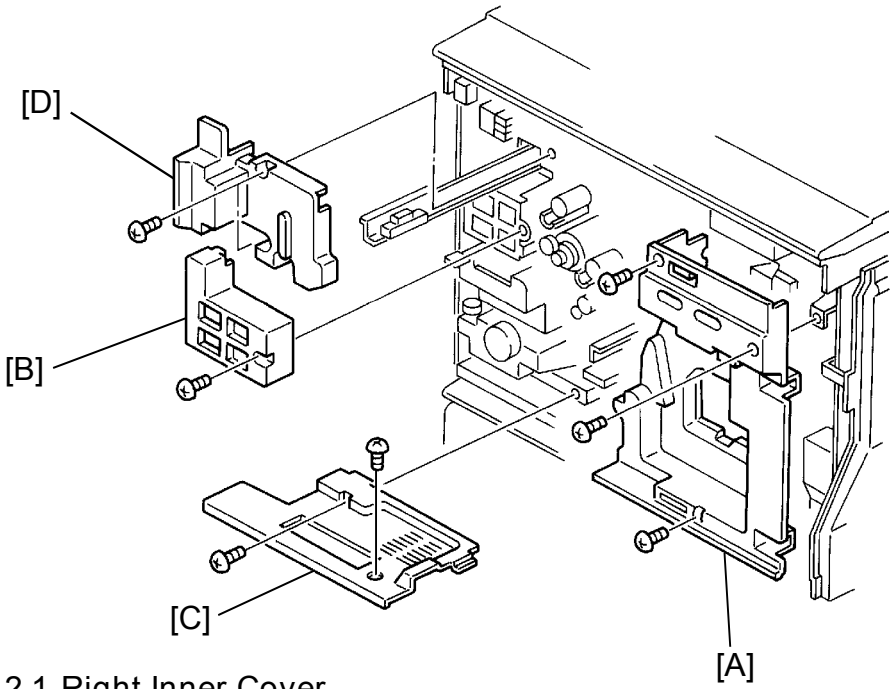
1. Open both doors.
2. Remove the lower front cover [D] (1 screw).

3.1.9 Top Cover



1. Remove the platen cover or the DJF (if installed).
2. Remove the left original scale [A] (2 screws) and the rear scale [B] (3 screws).
3. Remove the top right cover [C] (2 screws).
4. Remove the operation panel [D]. (See Operation Panel Removal Section.)
5. Remove the top cover [E] (4 screws).

3.2 INNER COVER REMOVAL



3.2.1 Right Inner Cover

1. Open the front doors.
2. Remove the right inner cover [A] (3 screws).

3.2.2 Total Counter Cover

1. Open the front doors.
2. Remove the total counter cover [B] (1 screw).

3.2.3 Lower Left Inner Cover

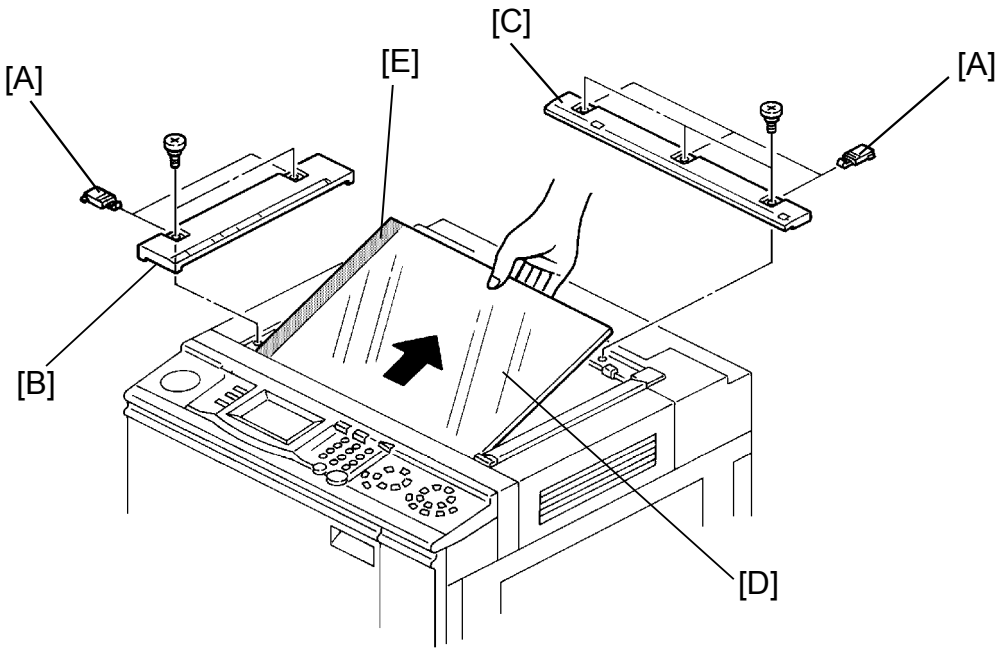
1. Open the front doors.
2. Remove the toner hopper unit. (See Development Unit Removal Section.)
3. Remove the lower left inner cover [C] (2 screws).

3.2.4 Upper Left Inner Cover

1. Remove the front door.
2. Remove the total counter cover [B].
3. Remove the upper left inner cover [D] (2 screws).

4. SCANNER UNIT

4.1 EXPOSURE GLASS REMOVAL



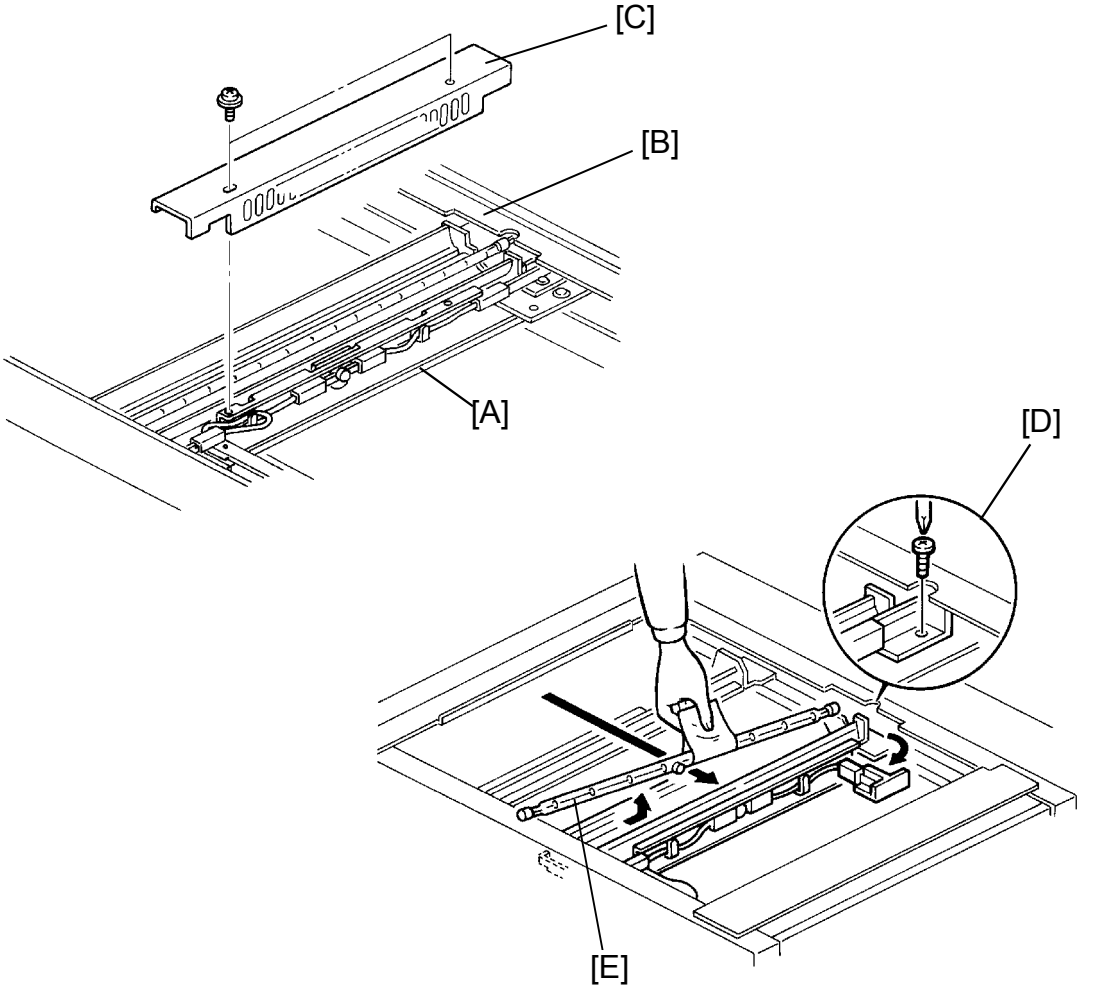
1. Remove all screw covers [A] (5 pcs) from the left and rear scales.
2. Remove the left scale [B] (2 shoulder screws) and the rear scale [C] (3 shoulder screws).
3. Grasp the rear side of the exposure glass [D] and lift up slightly. Remove the exposure glass [D] by sliding it to the rear side as shown in the figure.

NOTE: When reinstalling the exposure glass, make sure of the following:

a) The white reference plate [E] must be facing down.

b) Position the white plate at the left.

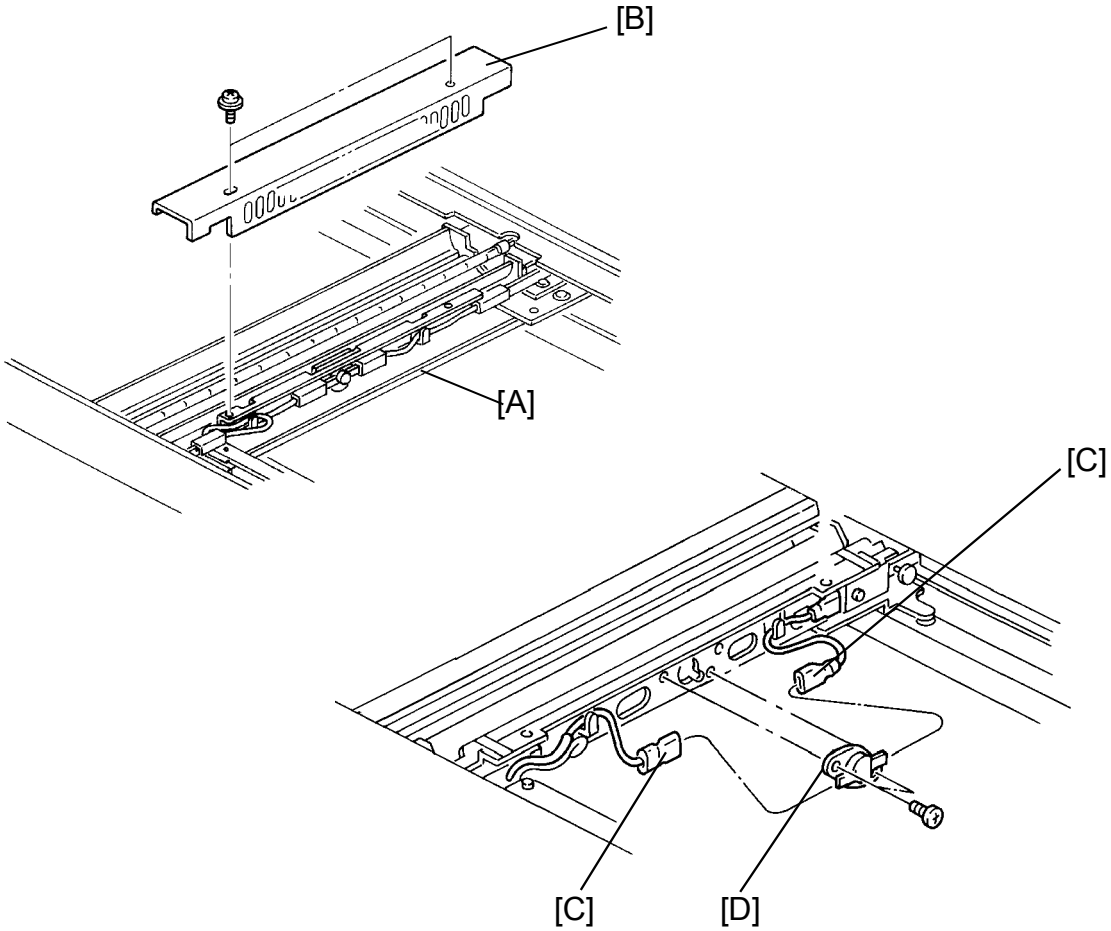
4.2 EXPOSURE LAMP REPLACEMENT



NOTE: Do not touch the reflectors or the new exposure lamp with your bare hands. Oil marks from fingers on the lamp or reflectors will be affected by heat from the lamp and will cause discoloration.

1. Turn off the main switch and unplug the machine.
2. Remove the exposure glass. (See Exposure Glass Removal.)
3. Move the first scanner [A] to the cutout position at the front and rear frames [B]. (See illustration.)
4. Remove the reflector cover [C] (2 screws).
5. Remove the rear terminal assembly [D] (1 screw) and remove the exposure lamp [E] as illustrated.
6. Install a new lamp in the opposite way.

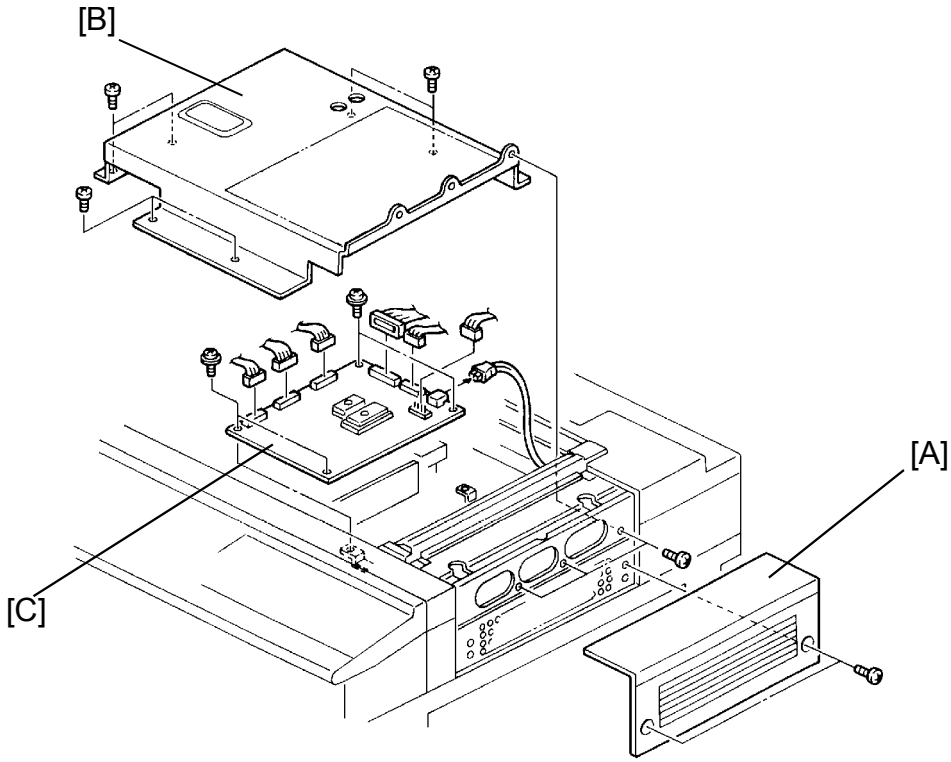
4.3 OPTICS THERMOSWITCH REPLACEMENT



1. Turn off the main switch and unplug the machine.
2. Remove the exposure glass. (See Exposure Glass Removal.)
3. Slide the 1st scanner [A] to the cutout position and remove the reflector cover [B] (2 screws).
4. Remove the exposure lamp leads [C] from the terminals on both sides of the thermoswitch [D].

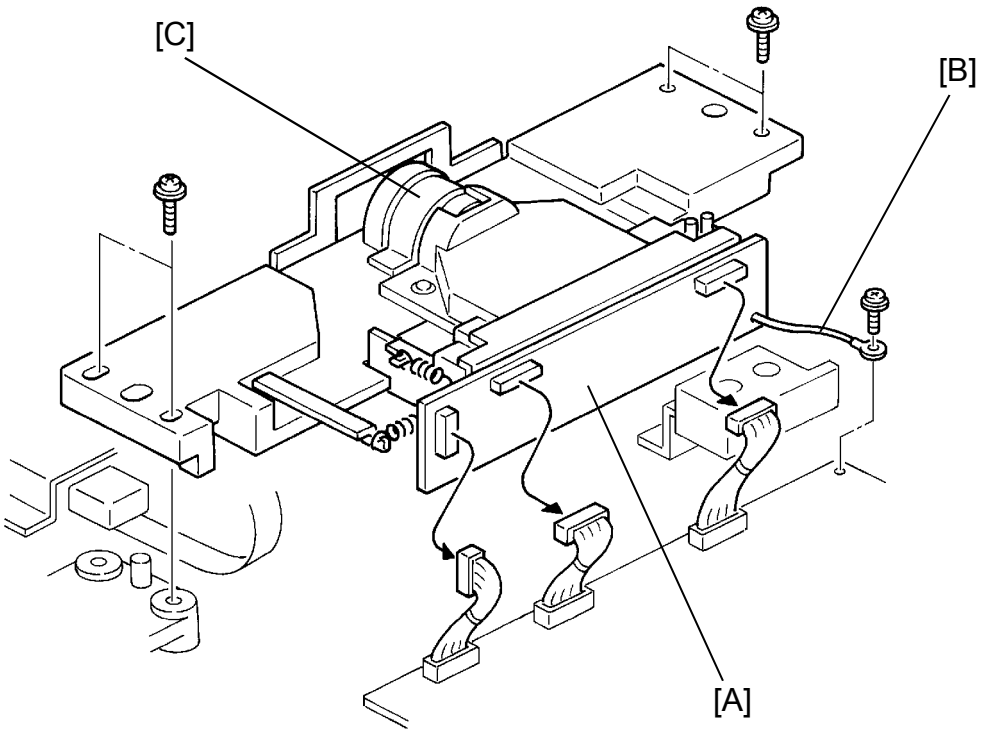
   NOTE: Do not pull the harness. Pull off the lamp leads by using the connector housing.
5. Replace the thermoswitch [D] (2 screws).

4.4 SCANNER CONTROL BOARD REPLACEMENT



1. Turn off the main switch and unplug the machine.
2. Remove the exposure glass. (See Exposure Glass Removal.)
3. Remove the top right cover [A] (2 screws).
4. Remove the lens cover [B] (9 screws).
5. Disconnect all the connectors from the scanner control board [C].
6. Replace the scanner control board [C] (4 screws, 1 fiber cable).

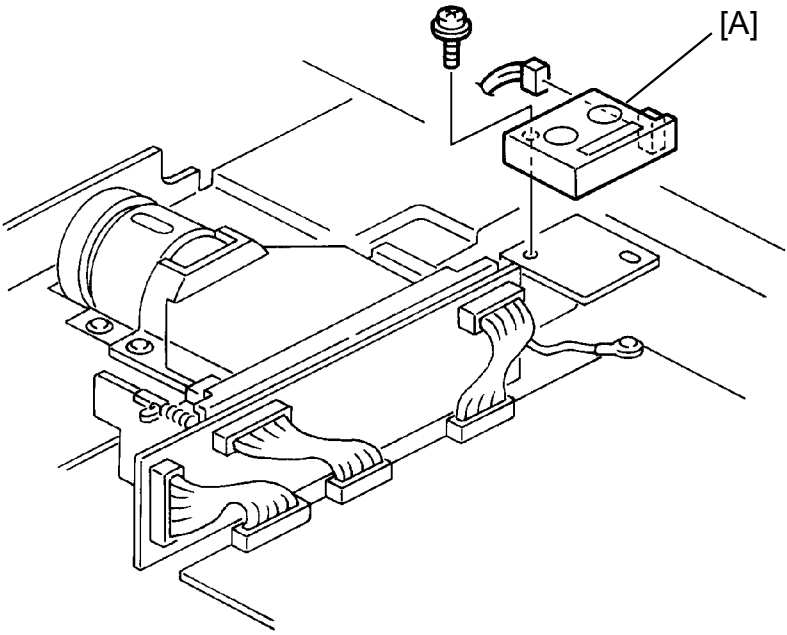
4.5 LENS UNIT (CCD BOARD) REPLACEMENT



NOTE: Make sure to remove the screws indicated.

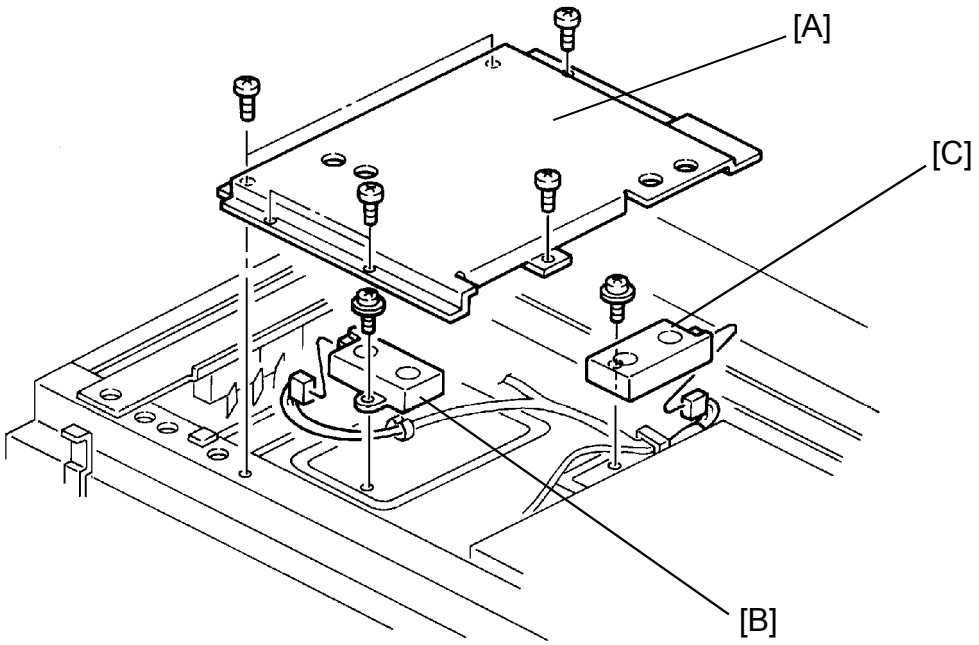
1. Perform steps 1 to 4 of the scanner control board replacement section.
2. Disconnect the 3 connectors from the CCD board [A].
3. Free the ground wire [B] of the CCD board (1 screw).
4. Remove the lens unit [C] (4 screws).

4.6 ORIGINAL LENGTH SENSOR (1) REPLACEMENT



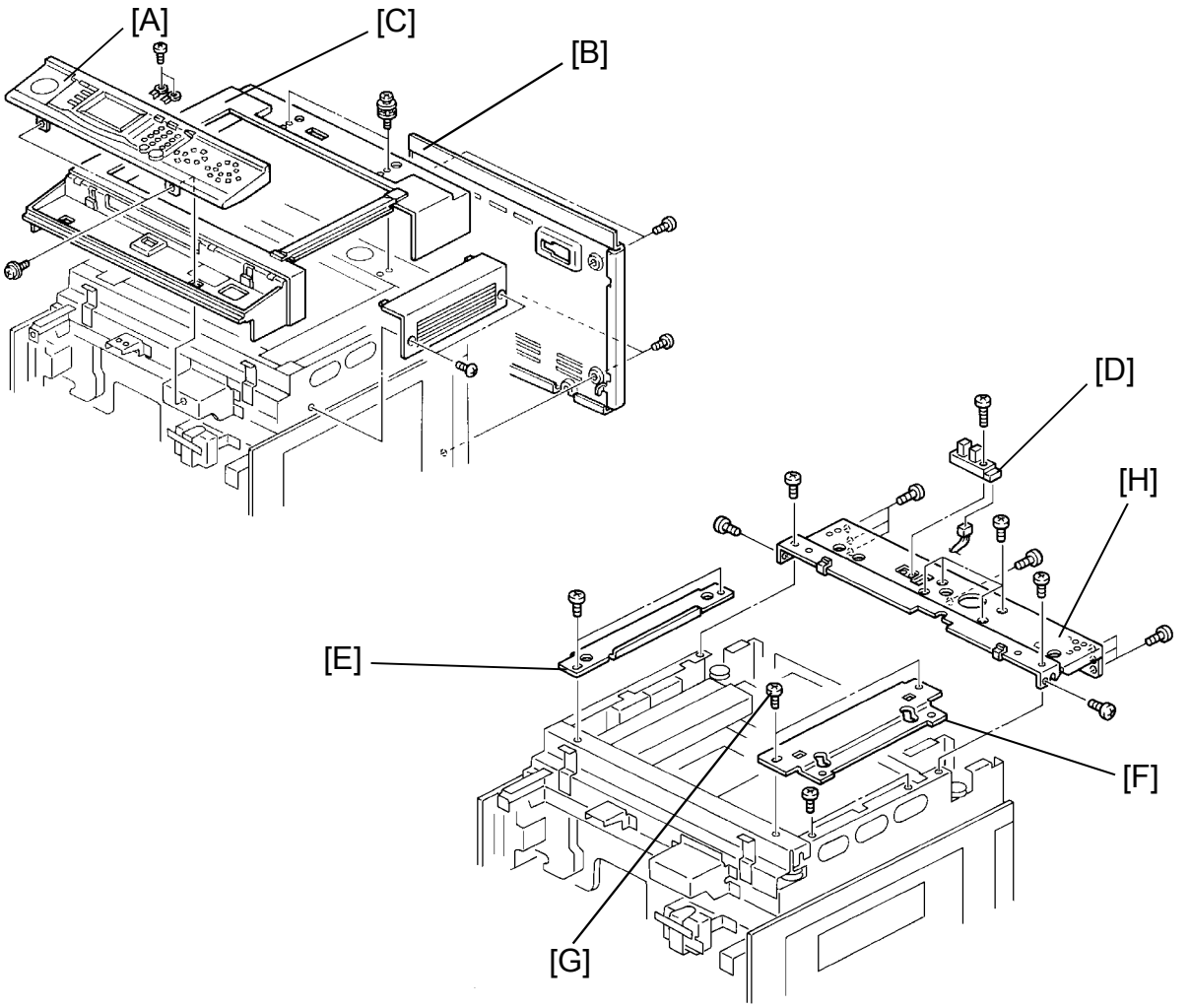
1. Perform steps 1 to 4 of the scanner control board replacement section.
2. Replace the original length sensor 1 [A] (1 screw, 1 connector).

4.7 ORIGINAL WIDTH SENSOR AND ORIGINAL LENGTH SENSOR (2) REPLACEMENT



1. Turn off the main switch and unplug the machine.
2. Remove the exposure glass. (See Exposure Glass Removal.)
3. Remove the APS sensor cover [A] (7 screws).
4. Replace the original width sensor [B] or the original length sensor (2) [C] (1 screw, 1 connector each).

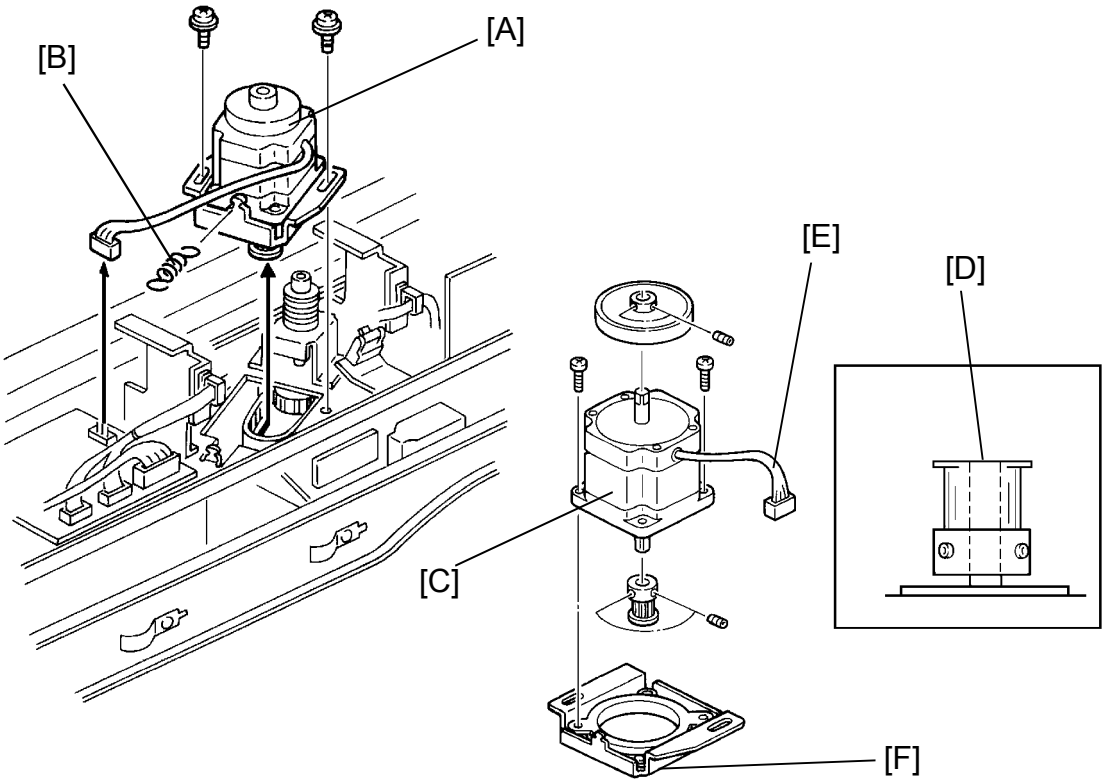
4.8 SCANNER MOTOR REPLACEMENT



1. Turn off the main switch and unplug the machine.
2. Remove the exposure glass. (See Exposure Glass Removal.)
3. Remove the following parts. (See Exterior and Inner Covers Removal Section.)
   - Operation panel [A]
   - Upper rear cover [B]
   - Top cover [C]
4. Remove the platen cover position sensor [D] (1 screw and 1 connector).
5. Remove the left scale bracket [E] (2 M3 x 5 screws) and the right stay bracket [F] (4 screws).

   NOTE: Screws [G] are M3 x 5 screws.

6. Remove the rear frame [H] (15 screws).



7. Remove the scanner motor ass'y [A] (2 M4x8 with washer screws, 1 spring [B], 1 connector and 1 screw securing the grounding wire).

8. Disassemble the scanner motor assembly as shown in the figure and replace the scanner motor [C].

NOTE: When reinstalling, make sure of the following.

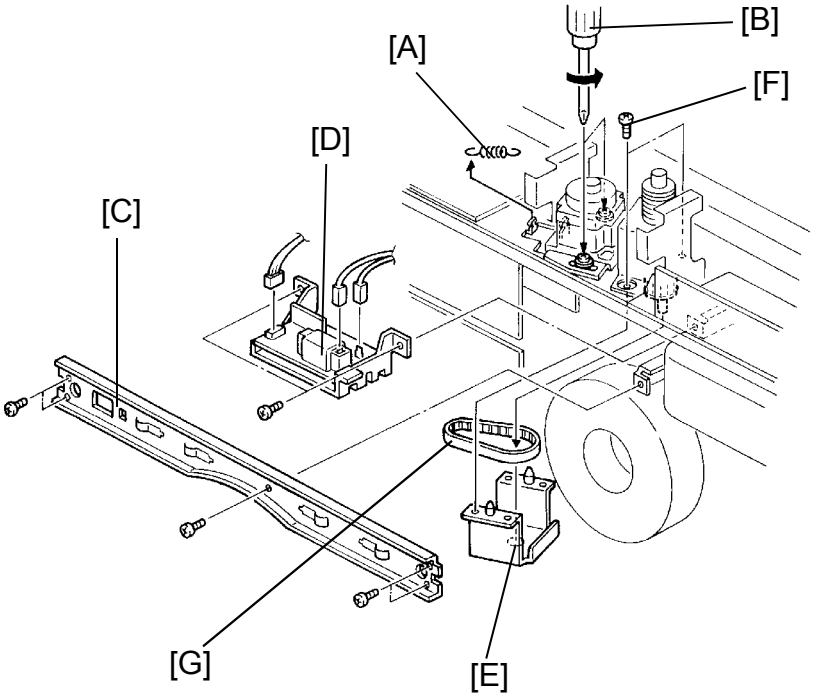
a) The motor pulley and the shaft must be aligned as shown [D].

b) Check the direction of the motor harness [E] when securing the motor [C] to the motor bracket [F].

c) The scanner motor belt runs over the pulley.

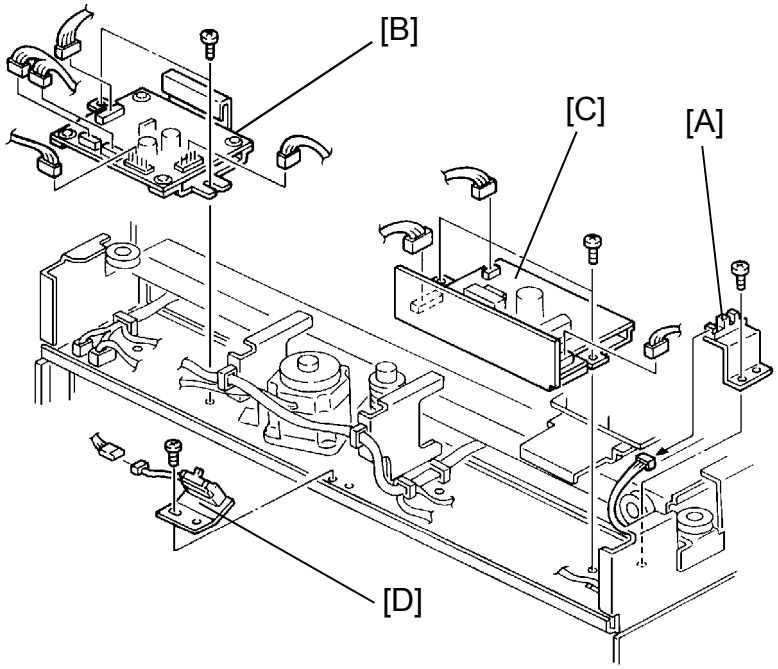
d) Hook the spring first, then secure the motor to the frame.

4.9 SCANNER DRIVE BELT REPLACEMENT



1. Perform steps 1 to 6 of the scanner motor replacement section.
2. Remove the spring [A].
3. Loosen the 2 M4x8 screws securing the scanner motor assembly [B].
4. Remove the supporting bracket [C] (5 screws and 2 connectors).
5. Remove the CG power pack [D] (2 screws and 3 connectors).
6. Lift up the scanner unit. (See Optical Housing Unit Replacement Section.)
7. Remove the wire pulley under bracket [E] by unscrewing the 2 screws [F].
8. Replace the scanner drive belt [G].

4.10 SCANNER HOME POSITION SENSOR/SCANNER MOTOR DRIVE BOARD/LAMP REGULATOR BOARD/SCANNER UNIT LIFT SENSOR REPLACEMENT



1. Perform steps 1 to 6 of the scanner motor replacement section.

-Scanner Home Position Sensor-

- Remove the Scanner home position sensor [A] with the bracket on (1 screw and 1 connector).
- Replace the sensor [A] (1 screw).

-Scanner Motor Drive Board-

- Replace the scanner motor drive board assembly [B] (2 screws and 5 connectors).

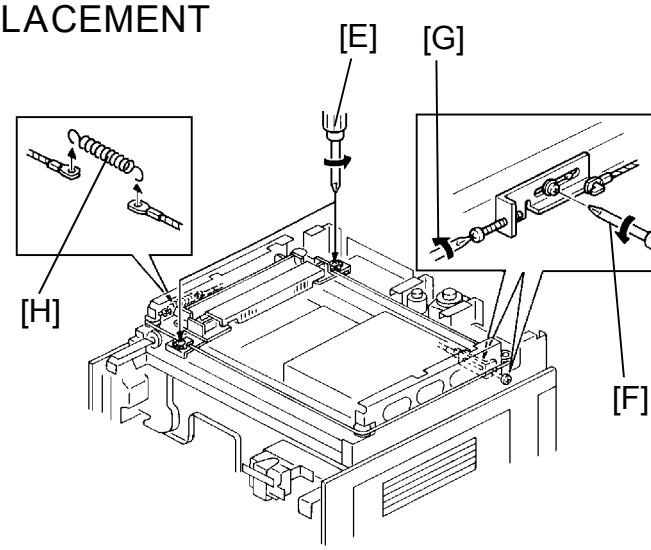
-Lamp Regulator Board-

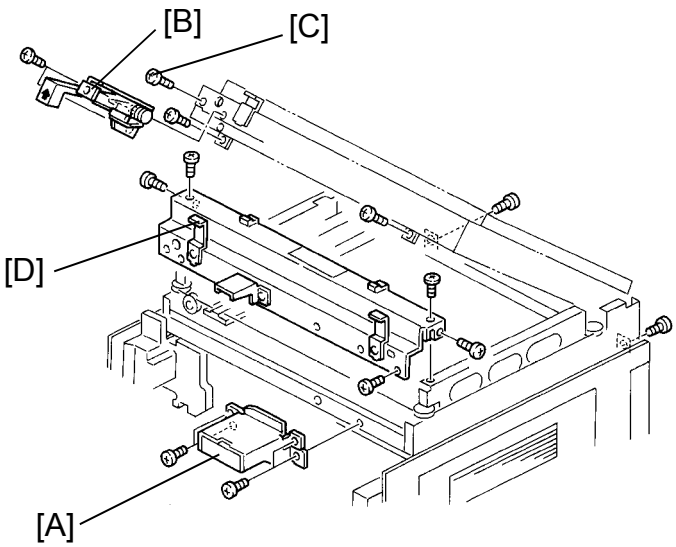
- Replace the lamp regulator board assembly [C] (2 screws and 3 connectors).

-Scanner Unit Lift Sensor-

- Remove the scanner unit lift sensor [D] with the bracket on (1 screw and 1 connector).
- Replace the sensor.

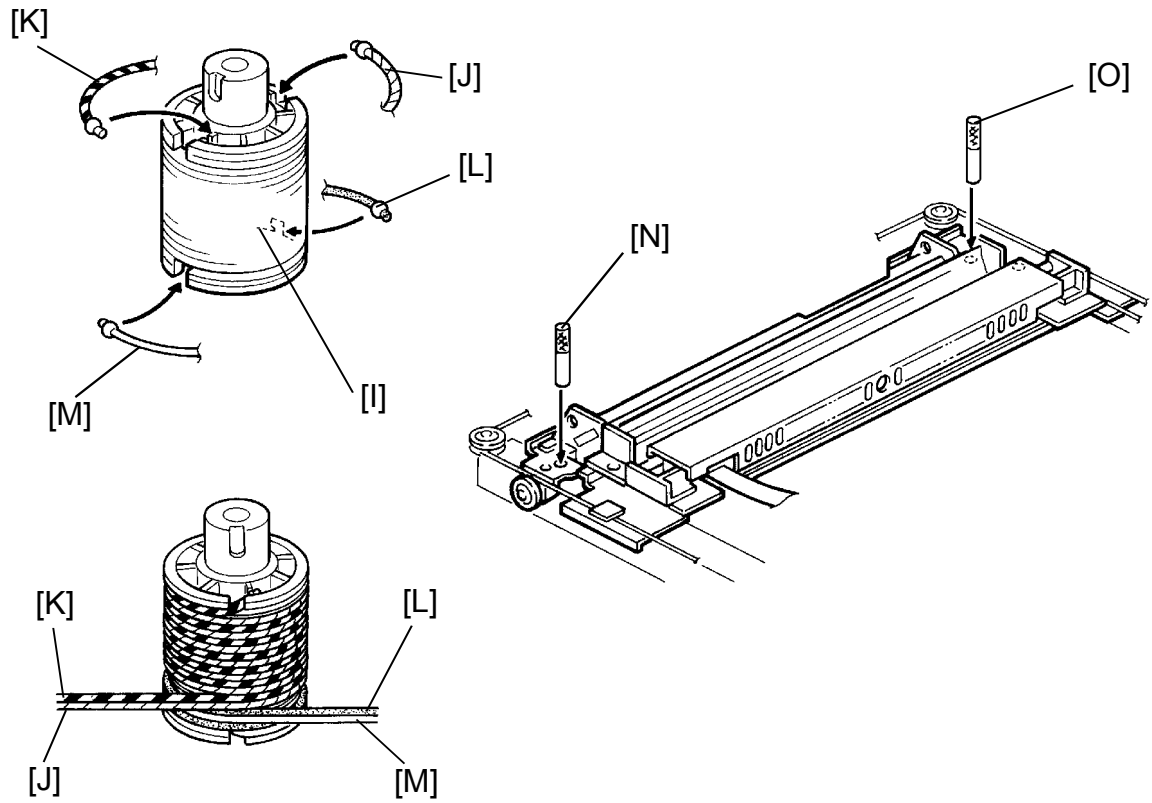
4.11 SCANNER WIRE REPLACEMENT





-Removal-

1. Perform steps 1 to 6 of the scanner motor replacement section.
2. Remove the right operation panel supporting bracket [A] (4 screws).
3. Lift up the Scanner Unit (See Optical Housing Unit Replacement Section) and remove the left operation panel supporting bracket [B].
4. Remove the screw [C].
5. Lower the scanner unit and remove the front scanner frame [D] (5 screws).
6. Loosen the front and rear brackets [E] securing the wire to the 1st scanner as shown in the figure.
7. Loosen the bracket fixing screw [F] and the adjusting screws [G].
8. Remove the tension spring [H] located at the left side and remove the scanner wires.



-Installation-

8. Remove the scanner drive pulley [I] (2 Allen screws).

9. Install the 4 scanner wires on the pulley by using the U shaped hole as a reference (See illustration):
   - Black wire, 6 1/2 turns [J]
   - Red wire, 6 turns [K]
   - Steal blue wire, 1 1/2 turns [L]
   - Clear gray wire, 1 turn [M]
   - Secure with a scanner wire clamp or tape.

10. Fix the pulley on the shaft and make sure of the following:
    a) No gap between the pulley and the flat washer.
    b) The wire crossing face the front of the machine.
11. Secure the second scanner with the 2 pins [N,O] by using the holes located furthest to the left.

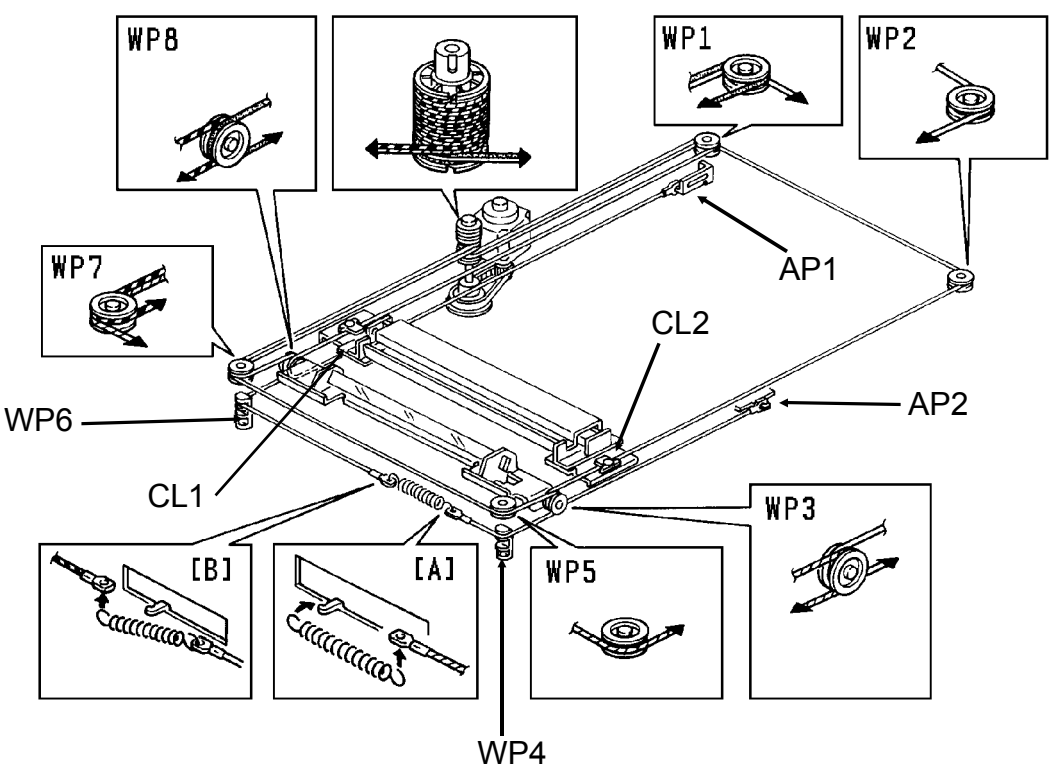
12. Secure the wires over the pulley in the following order, clear gray-black-steel blue- red, as shown in the figure. From the scanner wire pulley, run each wire in the order prescribed below.

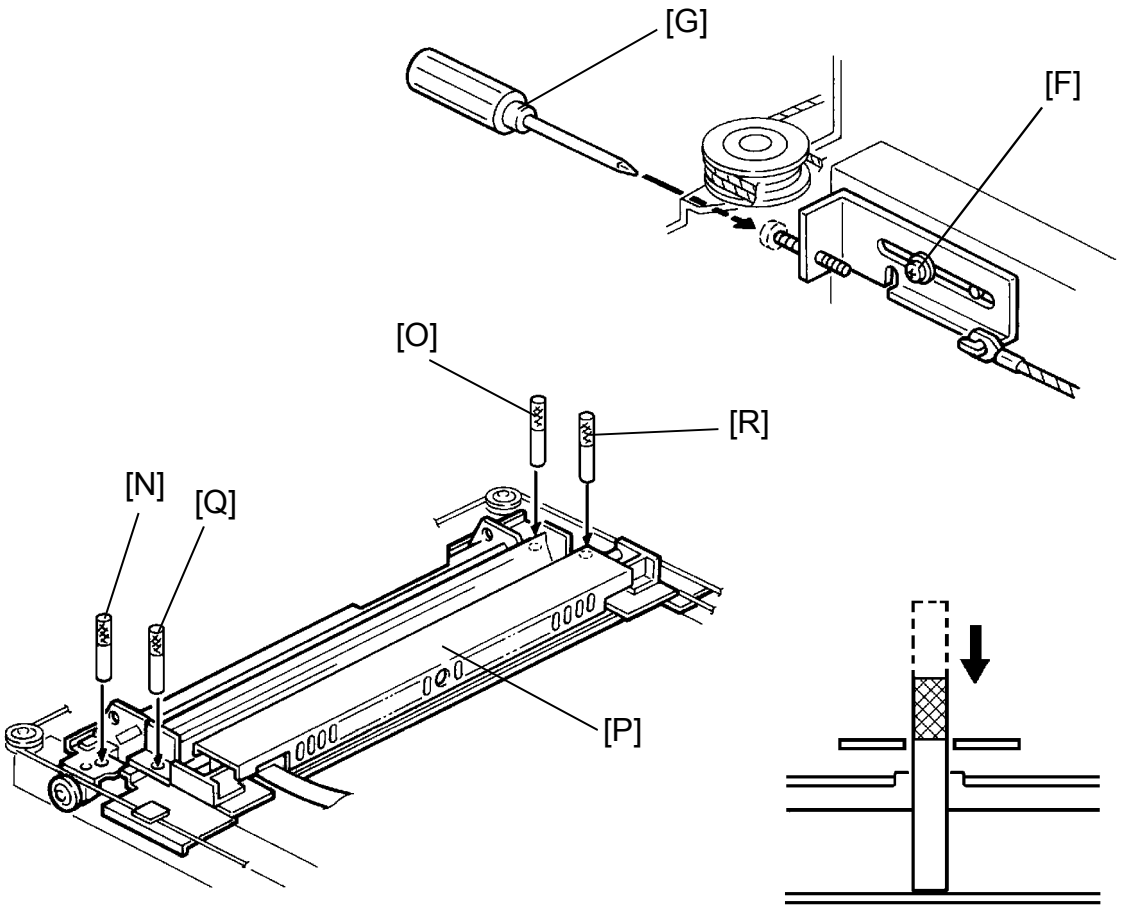
a) Clear gray wire to:
(1) the lower groove of WP1 to
(2) the lower groove of WP2 through
(3) the front clamp CL2 to
(4) the inner groove of WP3 to
(5) the anchor point AP2.

b) Black wire to:
(1) the lower groove of WP 7 to
(2) the lower groove of WP 5 to
(3) the outer groove of WP3 over
(4) WP4 and hook to tension spring and
(5) hook the spring to the frame clamp (for now) [A].

c) Steel blue wire to:
(1) the upper groove of WP1 through
(2) the rear clamp CL 1 to
(3) the inner groove of WP 8 to
(4) the anchor point AP1.

d) Red Wire to:
(1) the upper groove of WP7 to
(2) the outer groove of WP8 over
(3) WP6 and
(4) the hook to tension spring [B].

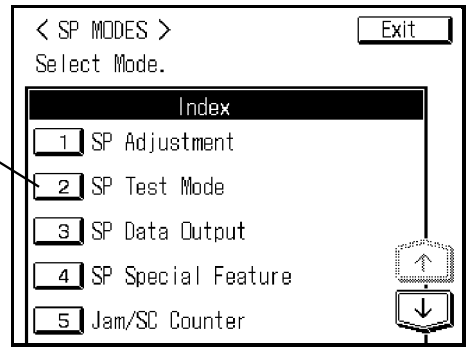




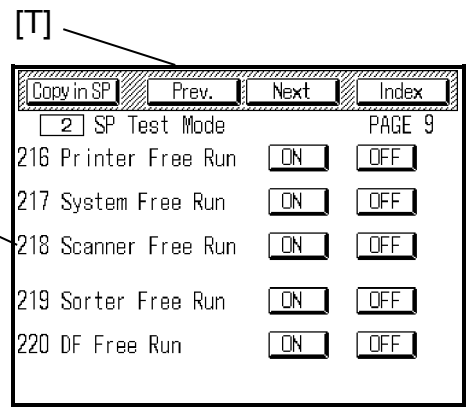
-Scanner Adjustment-

13. Pull out the rear positioning pin [O] and insert it again, making sure the pin does not pass through the rail completely.
14. Adjust the position of the 2nd scanner with the adjusting screw [G] until the rear pin falls into the hole in the rail.
15. Check that the front pin [N] falls into the hole without being forced.
16. Secure the bracket fixing screw [F] and remove the pins.
17. Manually position the first scanner [P] to the position over its pin holes, and install the positioning pins [Q, R].
18. Clamp the front and rear clamps [CL1, CL2] securing the wire to the first scanner (for now).
19. Remove the positioning pins [Q, R].

20. Connect the operation panel to the copier and by using the switch actuator, turn on the main switch.
21. Enter the SP mode and select the SP Test Mode [S].



22. Turn to page 9 [T] and perform No. 218 scanner free run [U] for about 5 minutes to condition the wires.
23. Turn off the main switch and loosen the clamps [CL1, CL2].
24. Manually move the 1st scanner [P] to the position over its pin holes and install the positioning pins [Q, R].



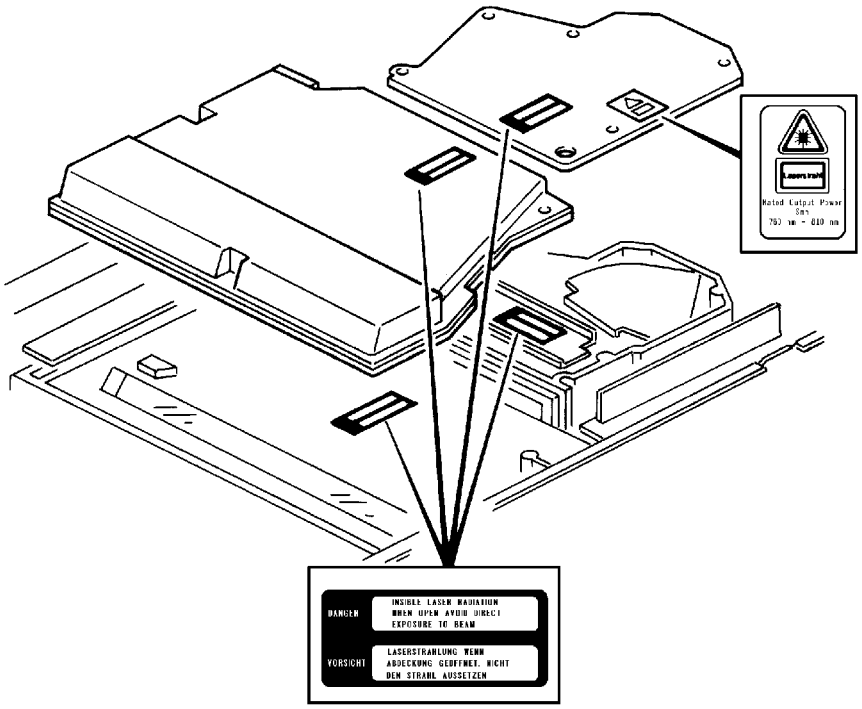
25. Secure the clamps [CL1, CL2].
26. Remove the positioning pins and reinstall the unit.

5. LASER UNIT

5.1 WARNING

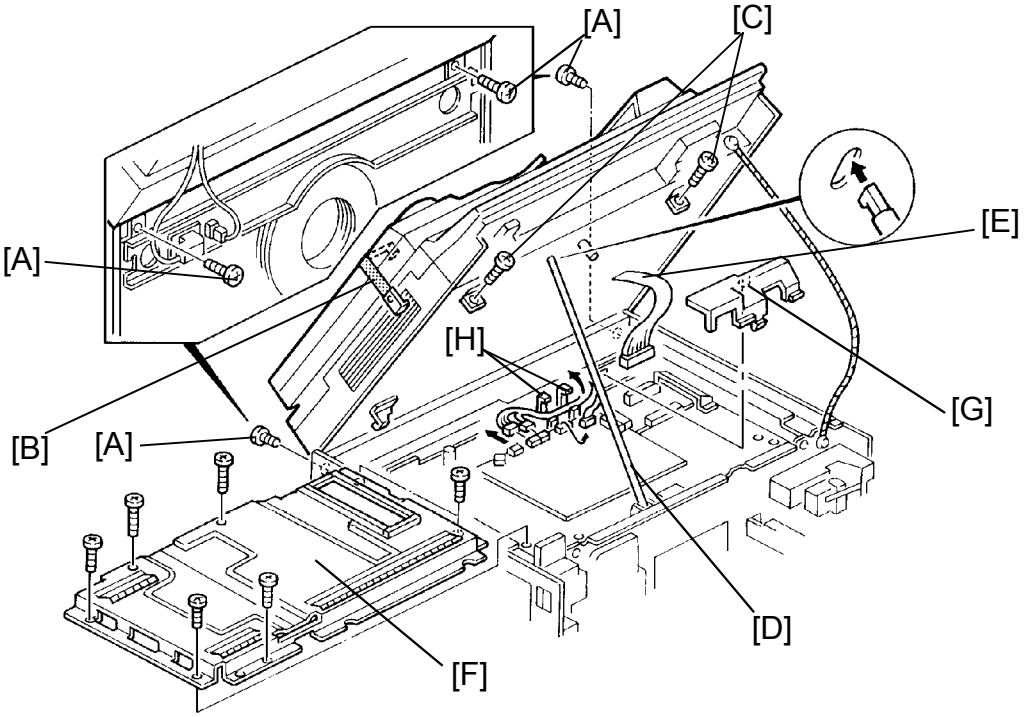
WARNING: Turn off the main switch and unplug the machine before attempting any of the procedures in this section. Laser beams can seriously damage your eyes.

– CAUTION DECAL –



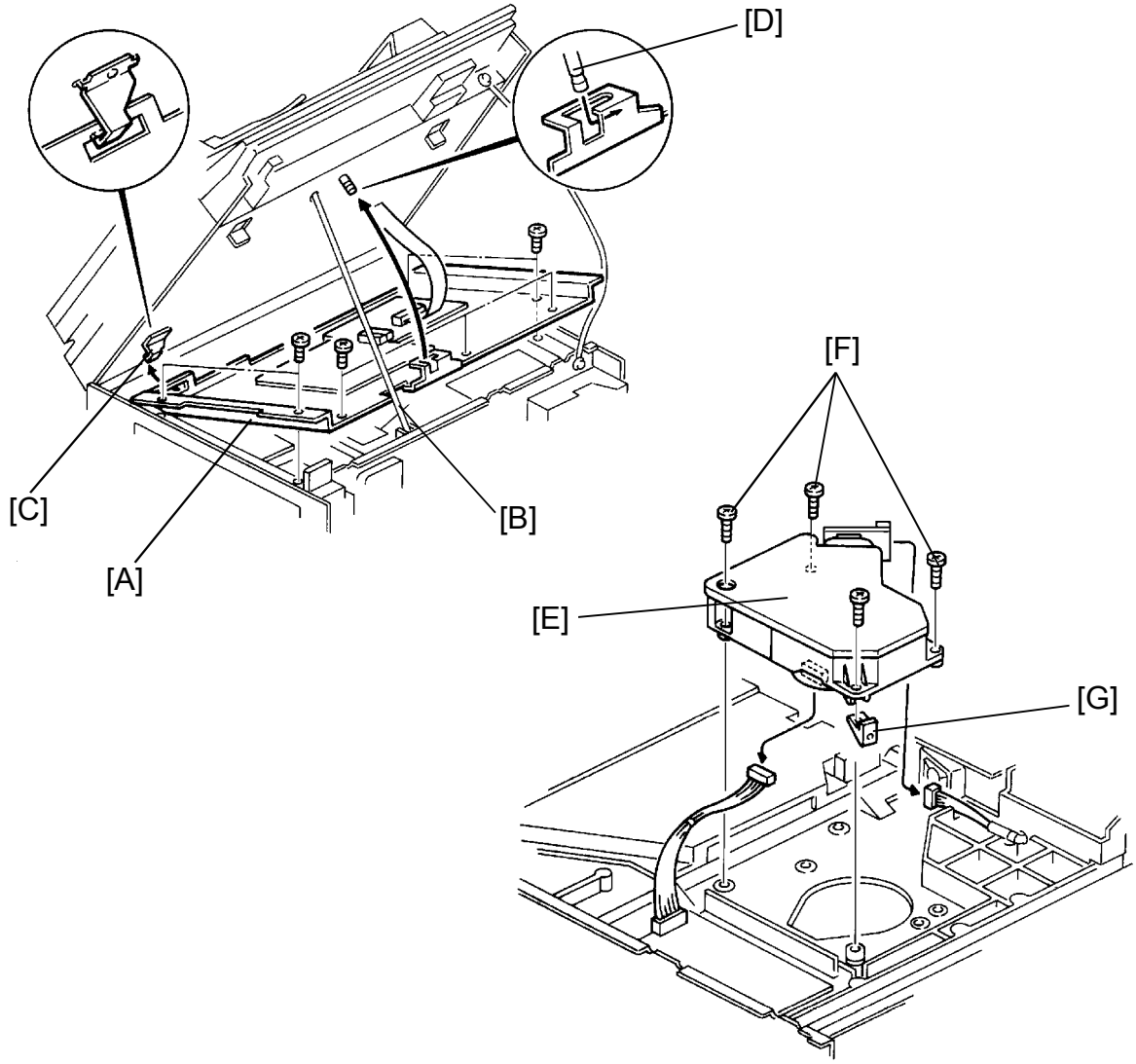
Five caution decals are located in the laser unit, as shown.

5.2 OPTICAL HOUSING UNIT REPLACEMENT



CAUTION: The polygon mirror is very sensitive to dust. Never open the optical housing.

1. Turn off the main switch and unplug the machine.
2. Remove the upper rear cover and remove the two fixing screws [A] at the rear of the scanner unit.
3. If the DJF is equipped on the copier, secure the DJF to the scanner unit with the DJF fixing belt [B] as shown.
4. Open the front doors and remove the toner tank unit (2 screws).
5. Remove the right inner cover (3 screws).
6. Remove the two fixing screws [C] at the front of the scanner unit.
7. Open the scanner unit and set the scanner support bar [D] as shown.
8. Disconnect the shielded flat cable [E] and remove the IPU board cover [F] (2 long and 5 short screws).
9. Remove the harness cover [G] from the right rear corner.
10. Open the harness clamps [H] and disconnect all the connectors on the IPU board. Make the IPU harnesses loose at the right rear corner so that the IPU board bracket can be raised freely.



11. Remove the IPU board bracket [A] (7 screws) and hang it underneath the scanner unit, as shown.

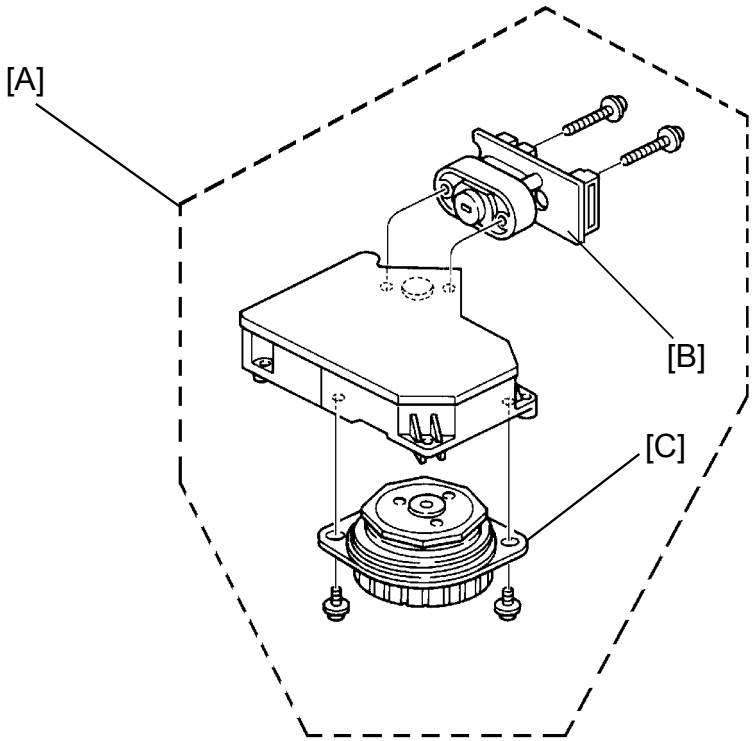
    NOTE: Raise the front side along the scanner support bar [B], hang the bracket on the two rear hooks [C], and set the front side on the pin [D] by shifting the whole bracket to the left.

12. Replace the optical housing unit [E] (4 screws, 2 connectors).

13. Reassemble all the parts according to the above steps in reverse.

    NOTE: When fixing the optical housing unit, secure the three screws [F] without the wedge first. Insert the wedge [G] and secure the screw when the wedge is stopped lightly.

5.3 LD UNIT AND POLYGON MOTOR REPLACEMENT



CAUTION: a) Do not loosen the screws securing the LD drive board to the laser diode casing. Doing so would throw the LD unit out of adjustment.
b) Do not adjust the VR's on the LD unit as they are adjusted at the factory.
c) Never touch the polygon mirror reflecting surface with bare hands.

1. Turn off the main switch and unplug the machine.
2. Remove the optical housing unit [A]. (See the optical housing unit replacement procedure.)

– LD unit –

3. Remove the LD unit [B] from the optical housing unit (2 screws).

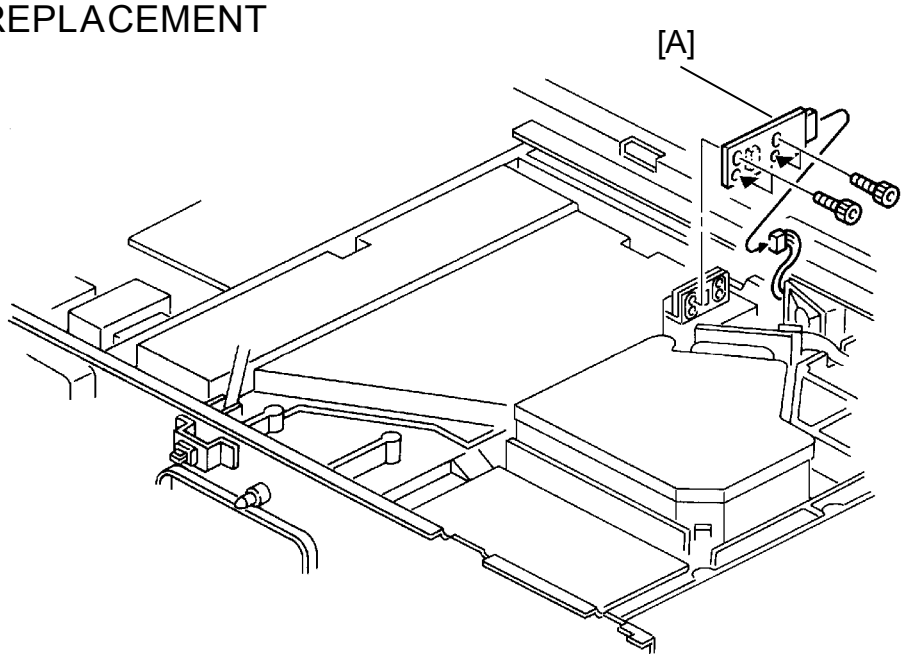
NOTE: When replacing the LD unit, make sure that the white connector socket is located at the right (front view).

– Polygon motor –

3. Remove the polygon motor [C] from the optical housing unit (2 screws).

NOTE: When replacing the polygon motor, make sure that the connector is located at the front.

5.4 LASER SYNCHRONIZING DETECTOR BOARD REPLACEMENT



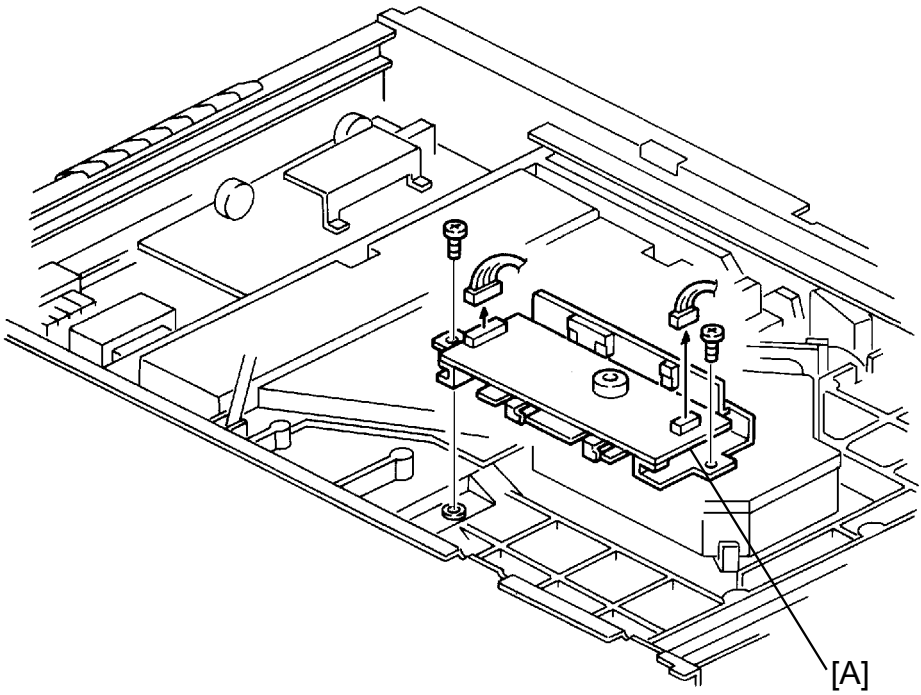
NOTE: Never touch the surface of the laser synchronizing detector eye.

1. Open the scanner unit and hang the IPU board bracket underneath the scanner unit. (Follow steps 1 to 11 of the optical housing unit replacement procedure.)
2. Remove the laser synchronizing detector board [A] (2 Allen screws, 1 connector).
3. Replace the new laser synchronizing detector board.

   NOTE: There are two holes on the board for each screw. Use the lower holes to secure the board.
4. Place the IPU board bracket in position and connect all the connectors to the IPU board.
5. Plug in the machine.
6. Actuate the door switch, turn on the main switch and confirm that LED308 on the IPU board changes the light intensity from strong to faint for a few seconds.

   NOTE: If LED308 keeps a strong intensity, turn off the main switch and unplug the machine. Then adjust the position of the laser synchronizing detector board by using the upper holes.
7. Turn off the main switch and unplug the machine. Then reassemble the machine.

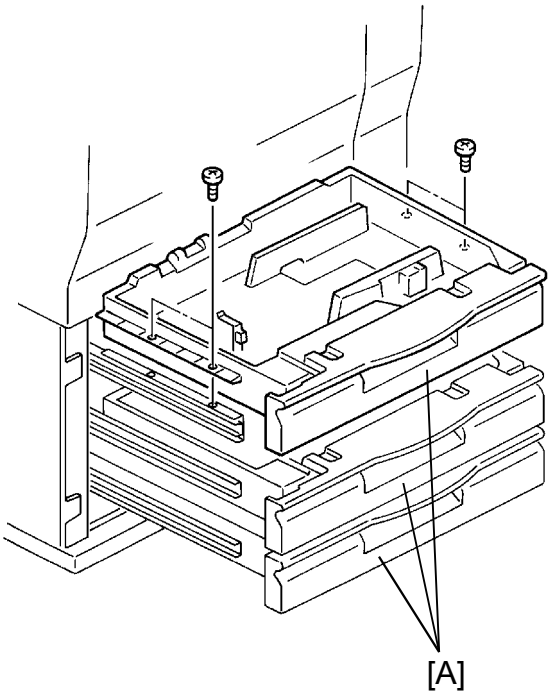
5.5 POLYGON MOTOR DRIVE BOARD REPLACEMENT

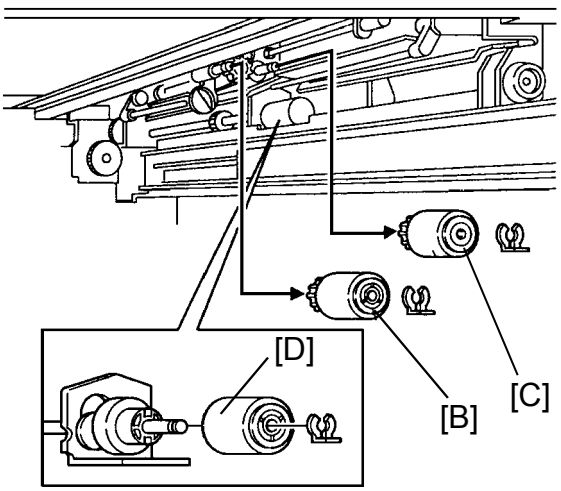


1. Open the scanner unit and hang the IPU board bracket underneath the scanner unit. (Follow steps 1 to 11 of the optical housing unit replacement procedure.)
2. Replace the polygon motor drive board [A] (2 screws, 2 connectors).

6. PAPER FEED SECTION

6.1 PICK-UP/PAPER FEED/SEPARATION ROLLER REPLACEMENT

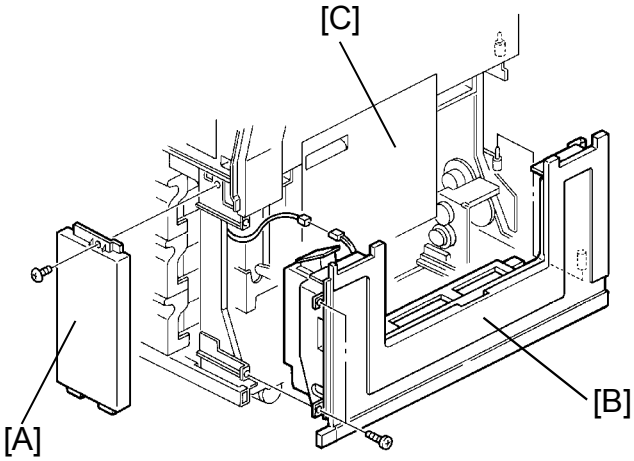


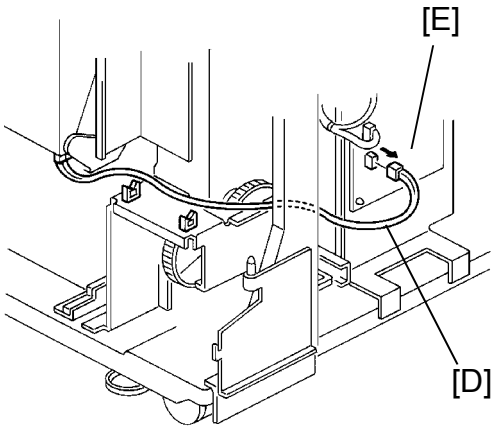


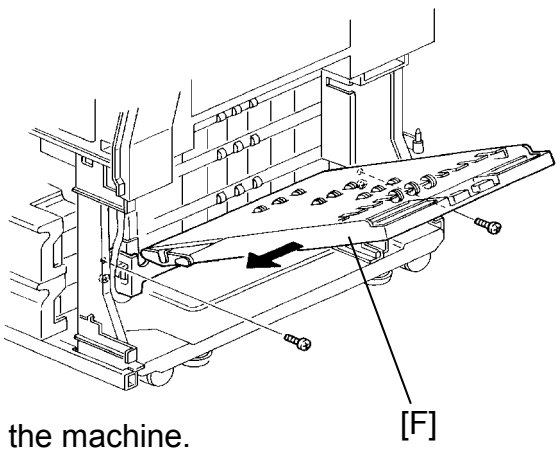
NOTE: Do not touch the rubber surface of the new rollers with oily bare hands.

1. Turn off the main switch and unplug the machine.
2. Remove the 3 paper trays [A] (4 screws each).
3. Replace the pick-up roller [B], the paper feed roller [C] and the separation roller [D] from each paper feed station (1 snap-ring each).

6.2 PAPER FEED CLUTCH, PICK-UP AND SEPARATION ROLLER SOLENOID REPLACEMENT (1ST, 2ND AND 3RD FEED UNIT)



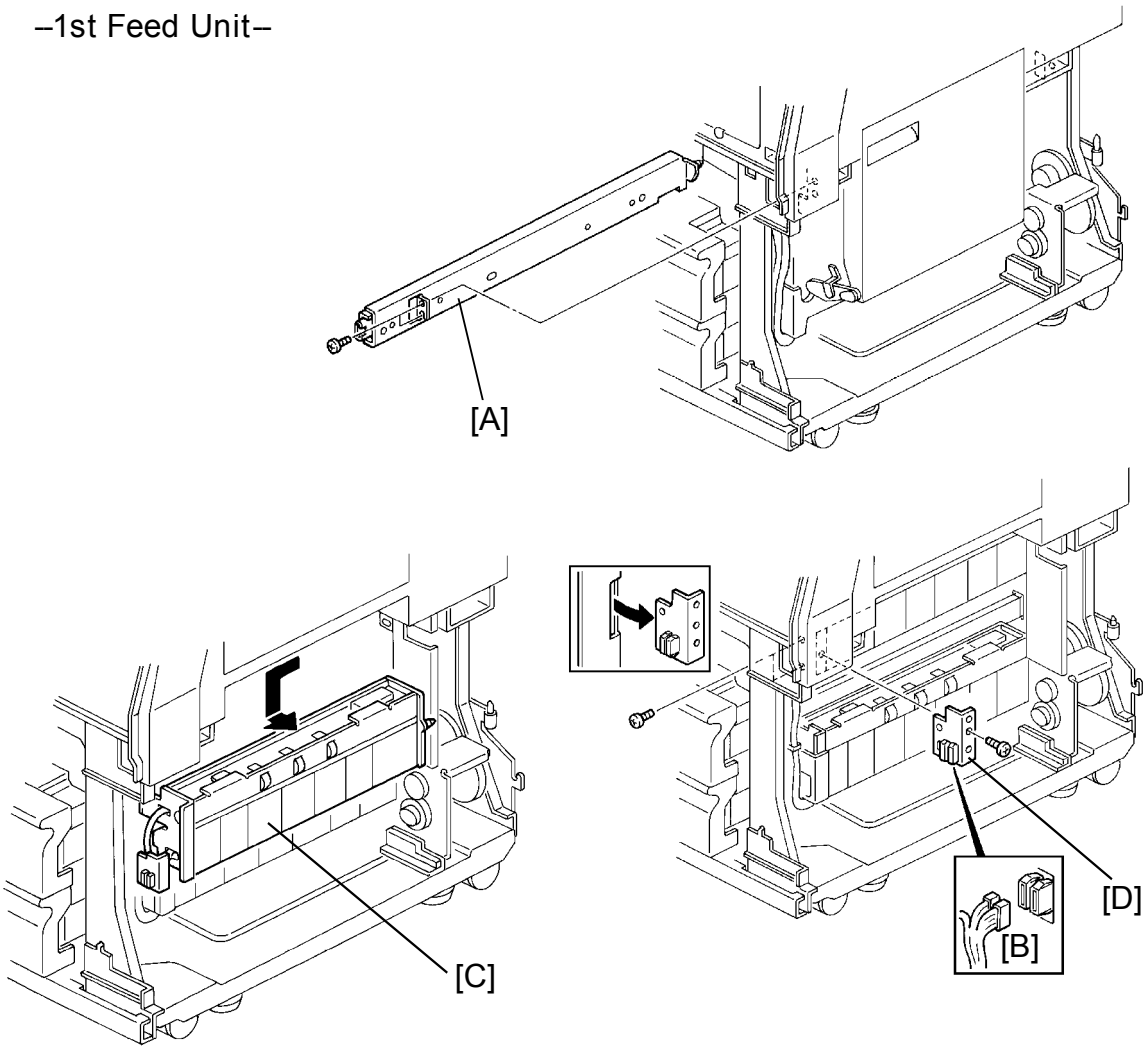




1. Turn off the main switch and unplug the machine.
2. Remove the following covers.
   - Upper rear cover
   - Lower rear cover
   - Lower front cover [A]
3. Pull out all paper trays.
4. Remove the used toner tank with the lower right cover [B] on (2 screws and 2 connectors).
5. Open the paper feed door [C].
6. Disconnect the 3P connector [D] from the paper feed control board [E].
7. Remove the vertical guide plate [F] (2 screws) by sliding to the left.

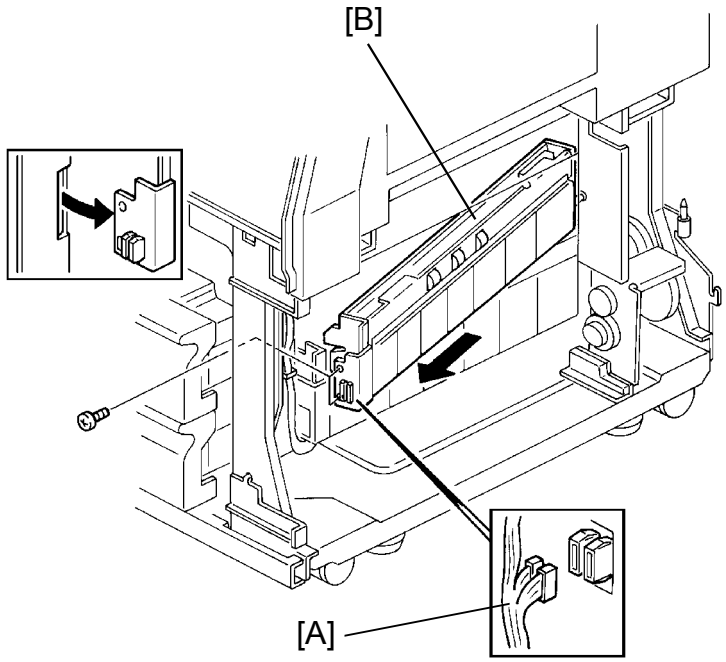
   NOTE: Clear all the harness when removing the vertical guide plate.

–1st Feed Unit–



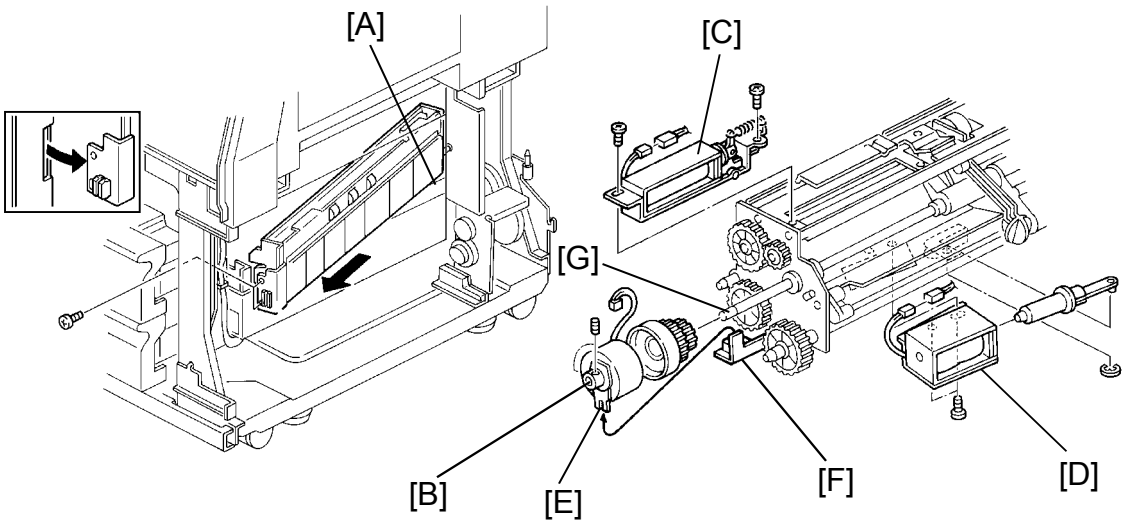
- Remove the 1st paper tray (4 screws).
- Remove the 1st paper feed tray right rail [A] (2 screws).
- Disconnect the connectors [B].
- Remove the 2nd paper feed unit. (See next page.)
  NOTE: Before removing 1st feed unit, 2nd feed unit must be removed.
- While supporting the 1st paper feed unit [C], remove the bracket [D] (3 screws).
- Remove the 1st paper feed unit [C] by sliding it to the left.

–2nd Feed Unit–



- Disconnect the connectors [A].
- Remove the 2nd paper feed unit [B] (2 screws) by sliding it to the left.

–3rd Feed Unit–

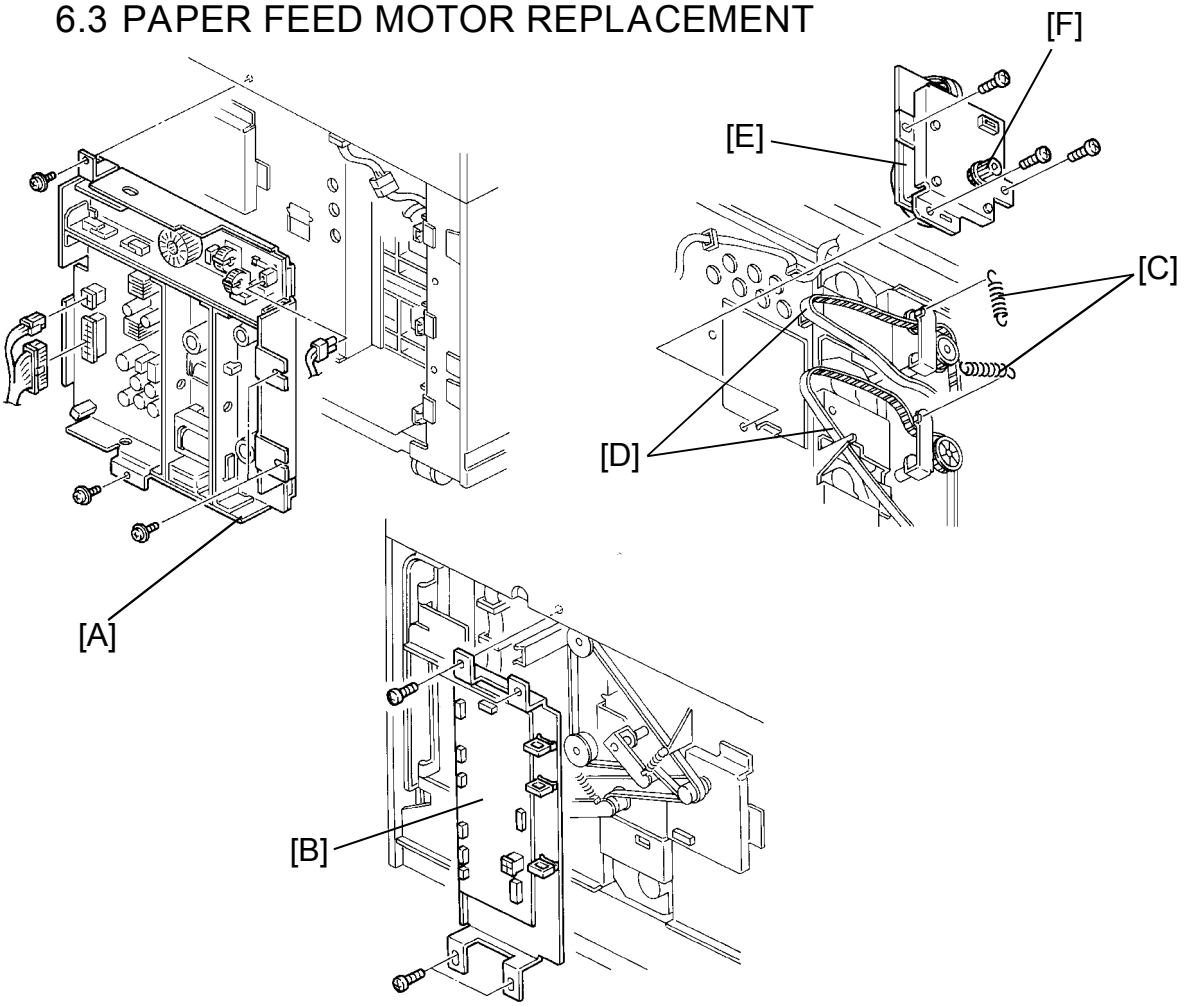


- Remove the 3rd paper feed unit [A] (2 screws and 2 connectors) by sliding it to the left.

8. Replace the tray feed clutch [B] (1 Allen screw and 1 connector).
9. Replace the pick-up solenoid assembly [C] (2 screws and 1 connector) or the separation roller solenoid assembly [D] (2 screws and 1 E-ring).

NOTE: When re-installing the tray feed clutch, set the stopper [E] of the clutch on the edge of the bracket [F] then fully push in the clutch on the feed roller shaft [G] and secure the Allen screw.

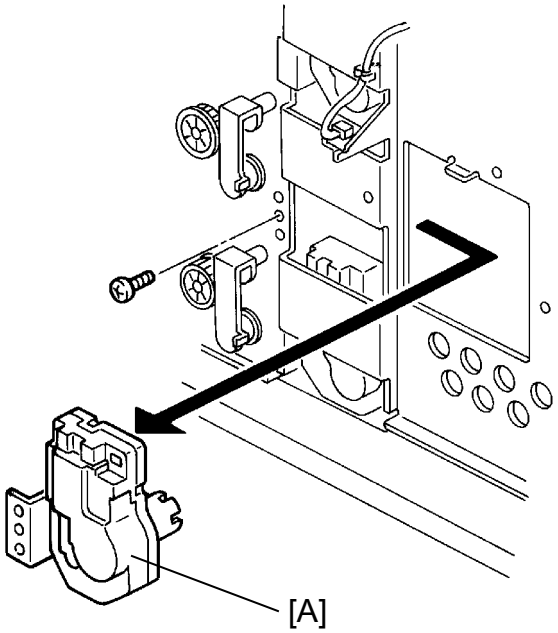
6.3 PAPER FEED MOTOR REPLACEMENT



1. Turn off the main switch and unplug the machine.
2. Remove the upper and lower rear cover.
3. Disconnect all connectors and remove the DC power supply unit [A] (4 screws)
4. Disconnect all connectors and remove the paper feed control board [B] (4 screws).
5. Remove the 2 belt tension springs [C], and move the belts [D] out of the way.
6. Remove the paper feed motor unit [E] (3 screws and 1 connector).
7. Remove the motor pulley [F] (1 Allen screw).
8. Replace the paper feed motor (3 screws).

NOTE: When reinstalling, make sure that the motor shaft and the pulley are aligned.

6.4 TRAY LIFT MOTOR (1ST, 2ND, AND 3RD) REPLACEMENT



1. Perform steps 1 to 5 of the Paper Feed Motor Replacement Section.

–1st and 3rd Tray Lift Motor–

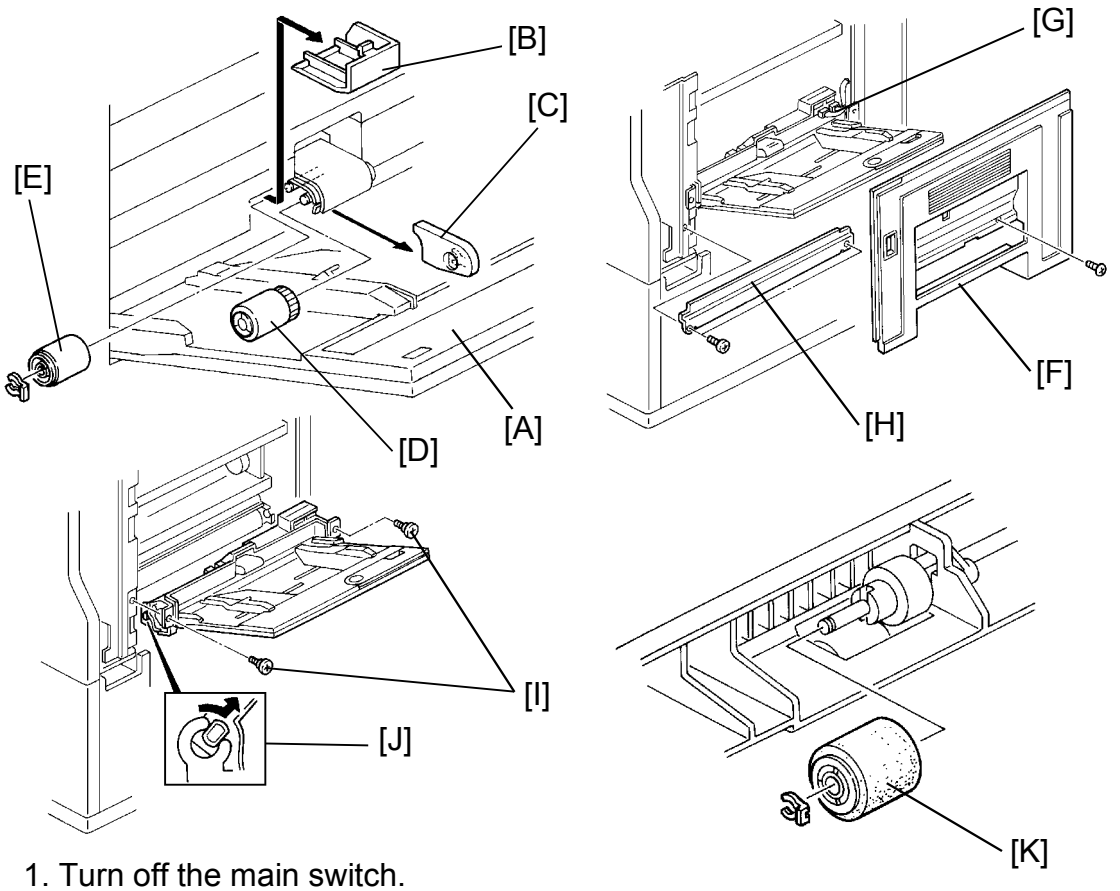
- Free the harness from the clamps and replace the motor [A] (1 screw, 1 connector).

–2nd Tray Lift Motor–

- Remove the Paper Feed Motor Unit. (See Paper Lift Motor Replacement Section.)
- Free the harness from the clamp and replace the motor [A] (1 screws and 1 connector).

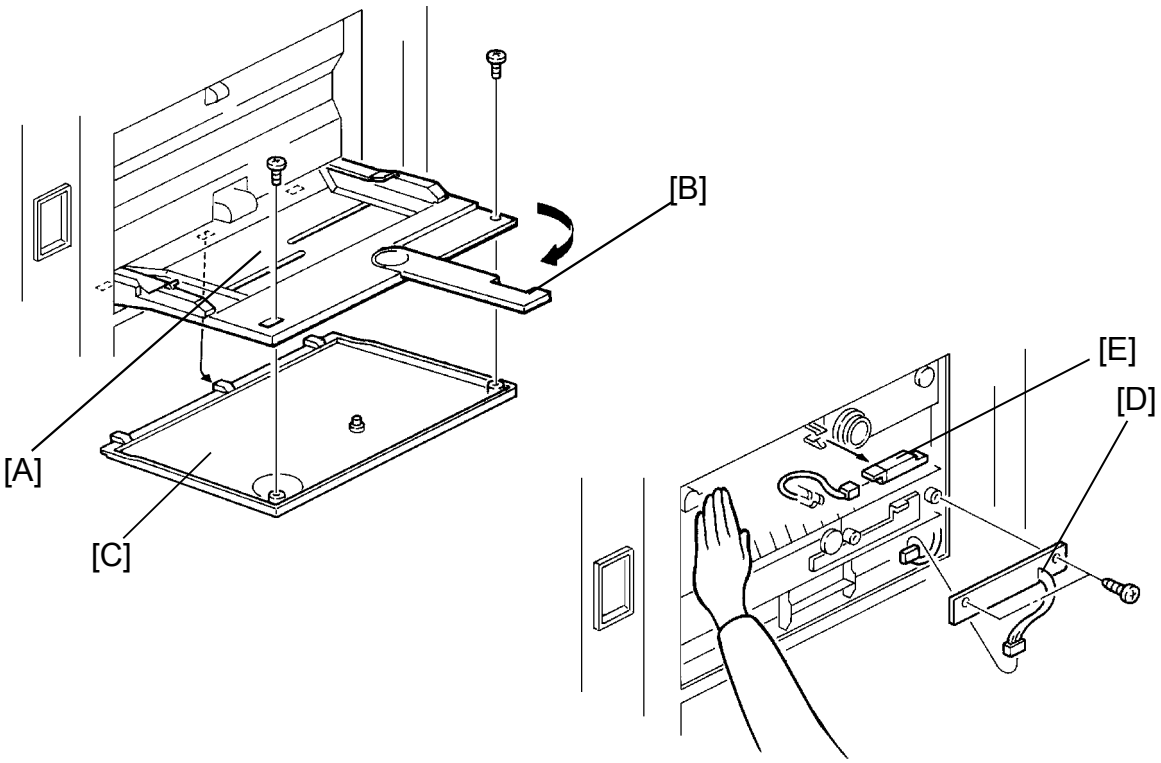
6.5 BY-PASS FEED TABLE

6.5.1 Pick-up, Paper Feed And Separation Roller Replacement



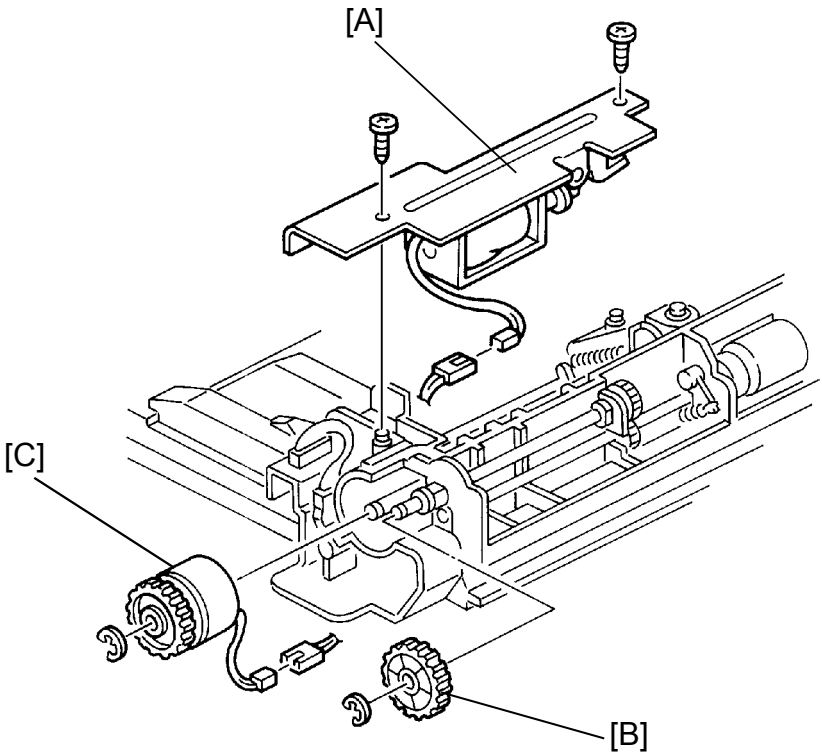
1. Turn off the main switch.
2. Open the by-pass feed table [A].
3. Snap off the housing cover [B] and the roller cover [C].
4. Replace the pick-up [D] and paper feed [E] (1 snap-ring) roller.
5. Remove the copier upper right cover [F]. (See Upper Right Cover Removal section.)
6. Disconnect the 2 connectors [G].
7. Open the right door and remove the vertical transport stay [H] (2 screws).
8. Remove the 2 step screws [I] securing the by-pass feed table.
9. Pull out the by-pass feed table by gently pressing down on the by-pass feed table until both of the tables pins meet the stay's openings as illustrated [J].
10. Replace the separation roller [K] (1 snap-ring).

6.6 BY-PASS PAPER WIDTH SENSOR AND BY-PASS PAPER LENGTH SENSOR REPLACEMENT



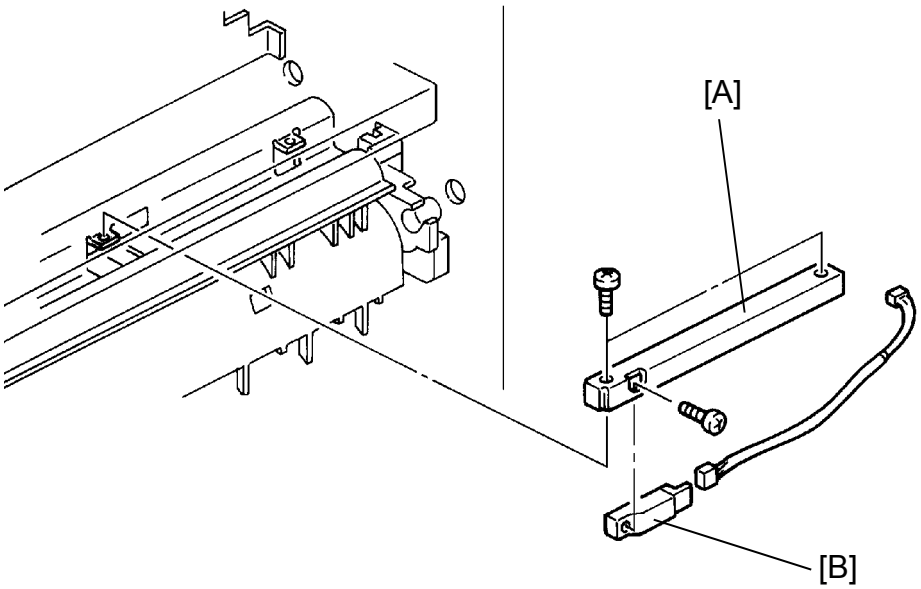
1. Turn off the main switch.
2. Open the by-pass feed table [A] and extend the paper supporting lever [B].
3. Remove the by-pass feed table outer cover [C] (2 screws).
4. Close the by-pass feed table.
5. Replace the width sensor [D] (2nd screws and 1 connector) or the length sensor [E] (1 connector).

6.7 BY-PASS FEED CLUTCH AND BY-PASS PICK-UP SOLENOID



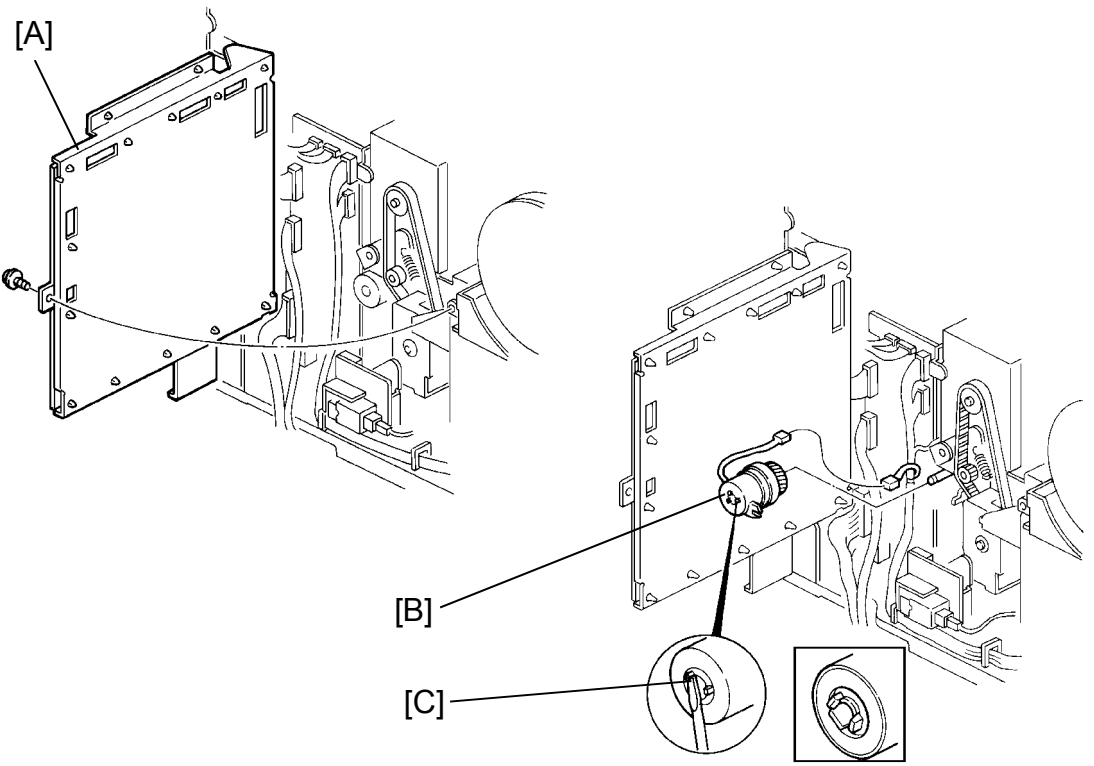
1. Turn off the main switch and unplug the machine.
2. Remove the by-pass feed table. (See Pick-up, Paper Feed and Reverse Roller Replacement section.)
3. Replace the by-pass pick-up solenoid assembly [A] (2 screws and 1 connector).
4. Remove the idle gear [B] (1E-ring).
5. Replace the by-pass feed clutch [C] (1 connector).

6.8 REGISTRATION SENSOR REPLACEMENT



1. Turn off the main switch.
2. Remove the by-pass feed table. (See Pick-up, Paper Feed and Reverse Roller Replacement section.)
3. Remove the registration sensor bracket [A] (2 screws) using a small screw driver.
4. Replace the sensor [B] (1 screw).

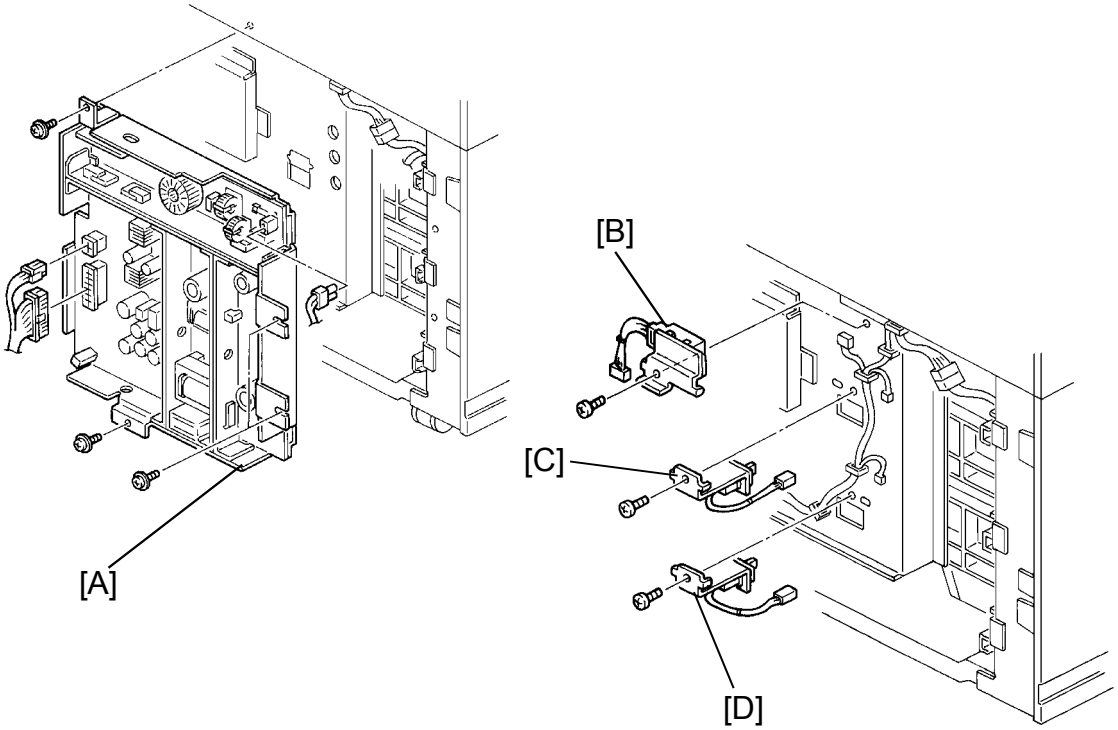
6.9 REGISTRATION CLUTCH REPLACEMENT



1. Turn off the main switch.
2. Remove the upper rear cover (4 screws) and swing open the main board [A] (1 screw).
3. Replace the registration clutch [B] by releasing the nail lock [C] (1 connector).

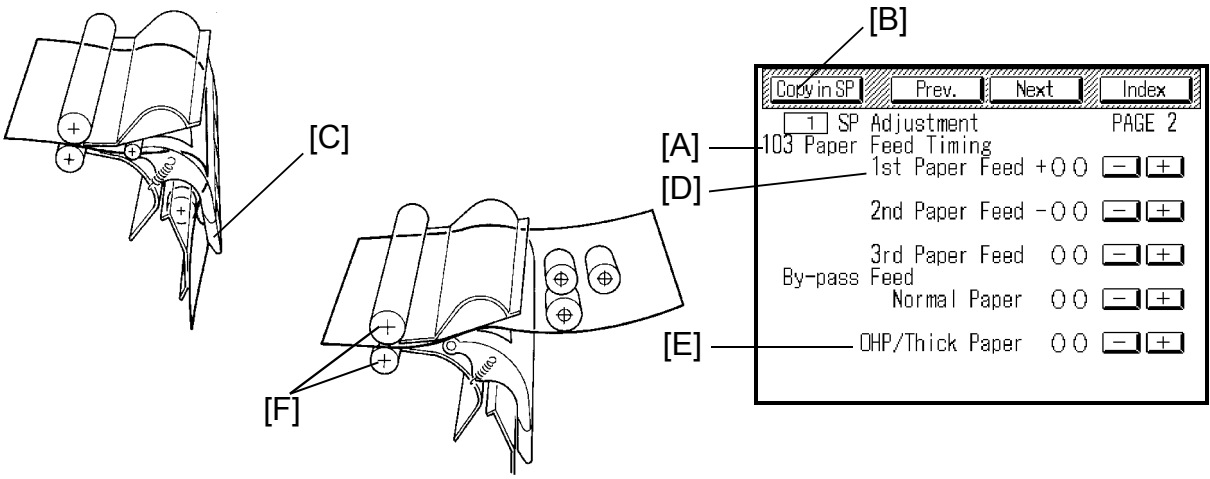
   NOTE: When reinstalling, make sure that the clutch is firmly locked and the stopper on the bracket fits to the slot on the clutch.

6.10 1ST PAPER TRAY PAPER SIZE SWITCH, 2ND AND 3RD TRAY SET SWITCH REPLACEMENT



1. Turn off the main switch and unplug the machine.
2. Remove the lower rear cover (4 screws).
3. Remove the DC power supply unit [A] (4 screws and 3 connectors).
4. Remove each switch (1st paper size switch [B], 2nd tray set switch [C], 3rd tray set switch [D]) with the bracket on (1 screw each).
5. Replace the switch.

6.11 REGISTRATION BUCKLE ADJUSTMENT

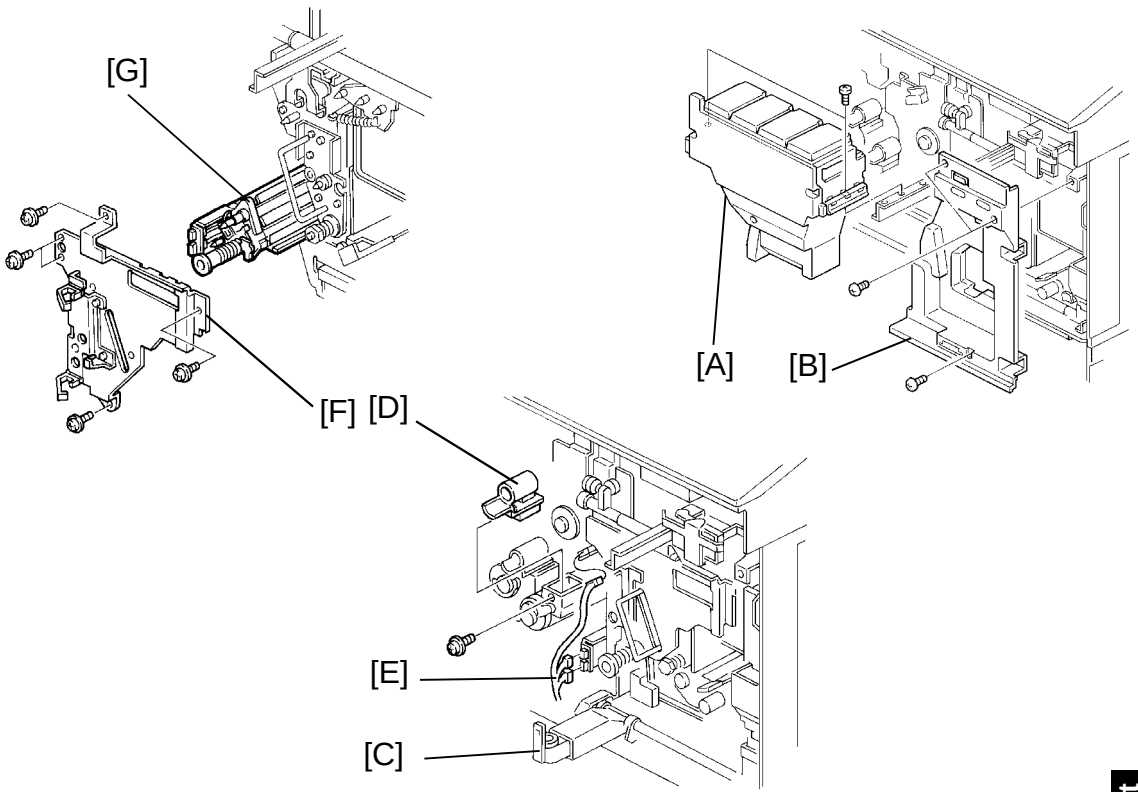


NOTE: The following adjustments are normally not needed.
Adjust only when the RAM board was replaced or after memory all clear procedure.

1. In all paper trays, load the paper the customer normally uses.
2. Remove the right inner cover (3 screws) and turn on the front safety switch using the accessory switch actuator.
3. Enter SP mode and open SP Adjustment P-2, No. 103 (Paper Feed Timing) [A].
4. Touch Copy in SP key [B] and select the 1st paper feed tray.
5. Make a few copies and confirm that the upper guide plate [C] is lifted up about 7 ~ 8 mm by the paper's buckle.
6. If out of specification, adjust the setting for the 1st paper feed [D]. Then press "Copy in SP" and confirm the results by making copies. (Entering a higher number will increase the paper's buckle.)
7. Adjust the 2nd and 3rd paper feed trays in the same manner.
8. Set A3 or DLT thick paper (104 ~ 157g/m^2 or 29 ~ 42 lb) on the by-pass feed table.
9. Select the by-pass feed "Thick Paper" and make a few copies. Adjust the setting for OHP/Thick Paper [E] to the point where paper is being fed but there is no buckle on the paper. (Enter a smaller number to reduce the buckle. Enter a higher number when paper does not feed through the registration rollers [F].)
10. At step No.9 condition, enter +5 bits and confirm the paper buckle.

7. DRUM UNIT

7.1 DRUM UNIT REMOVAL AND OPC DRUM REPLACEMENT

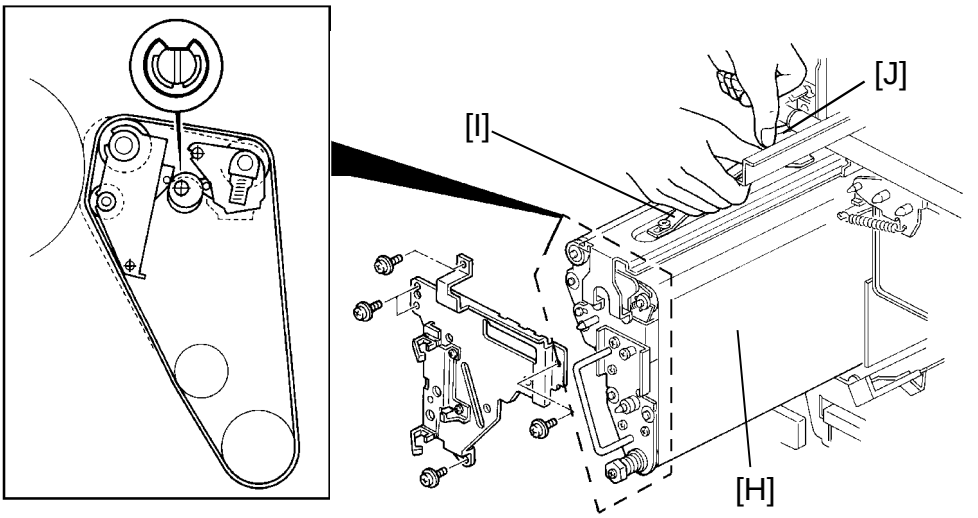


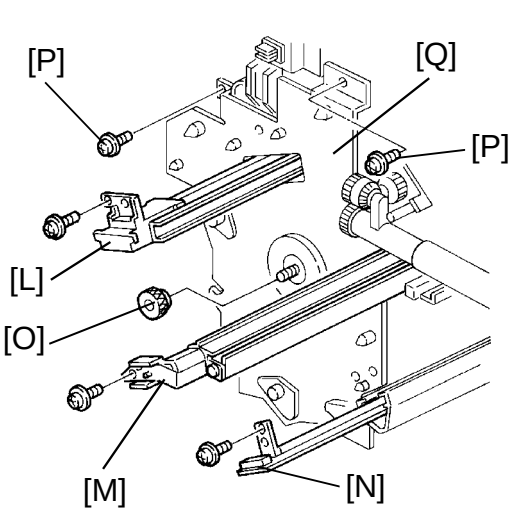
Before performing this procedure, place old newspapers on the floor to keep the customer site clean.

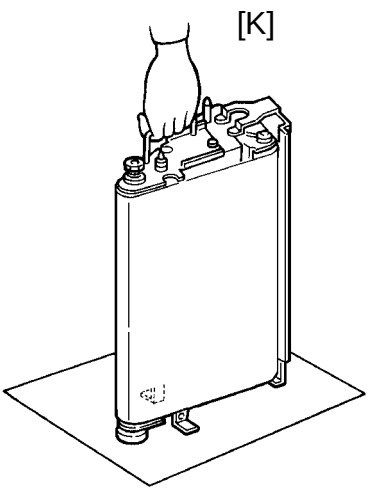
1. Turn off the main switch and unplug the machine.
2. Open the front doors and remove the toner tank [A] (2 screws).

   NOTE: Push the guide rails back in.

3. Remove the right inner cover [B] (3 screws).
4. Lower the toner collection duct [C] (1 hook).
5. Remove the yellow toner supply receptacle [D] (1 screw).
6. Disconnect the three connectors [E] and free them from the three harness clamps.
7. Remove the transfer belt stay [F] (5 screws).
8. Pull and remove the belt cleaning unit [G] out.





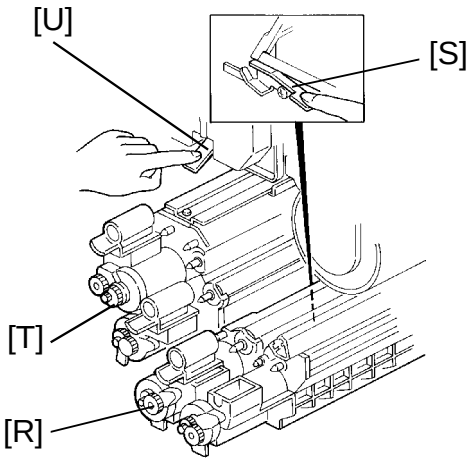


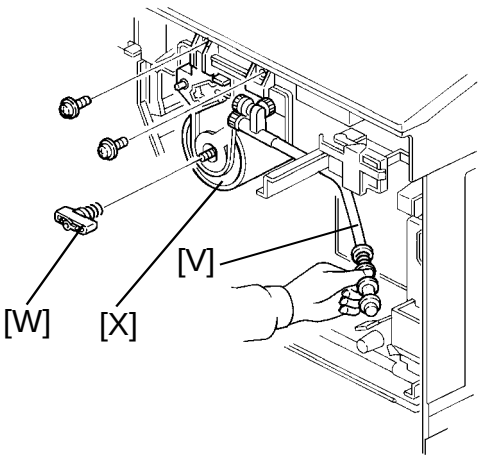
9. Confirm that the belt bias roller is in the release position and carefully pull and remove the transfer belt unit [H]. (While holding the handle[I], release the lever [J].)

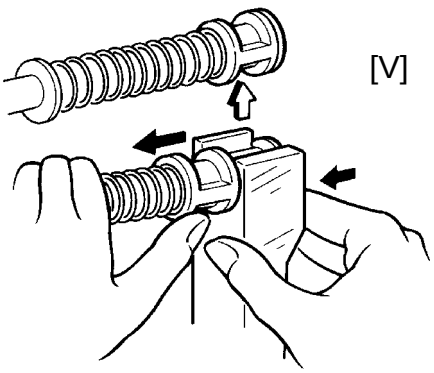
   NOTE: There are stands at the rear side of the transfer belt unit. After pulling out the unit out of the machine, make the transfer belt unit stand as shown [K].
   Do not touch the transfer belt surface with your oily bare hands.

10. Remove the charge corona unit [L] (1 screw), PCC [M] (1 screw) and ID sensor board [N] (1 screw).

11. Remove the knob [O] and the two screws [P] and slightly (2 ~ 3 cm, 1 inch) pull out all the development units then remove the drum stay [Q].

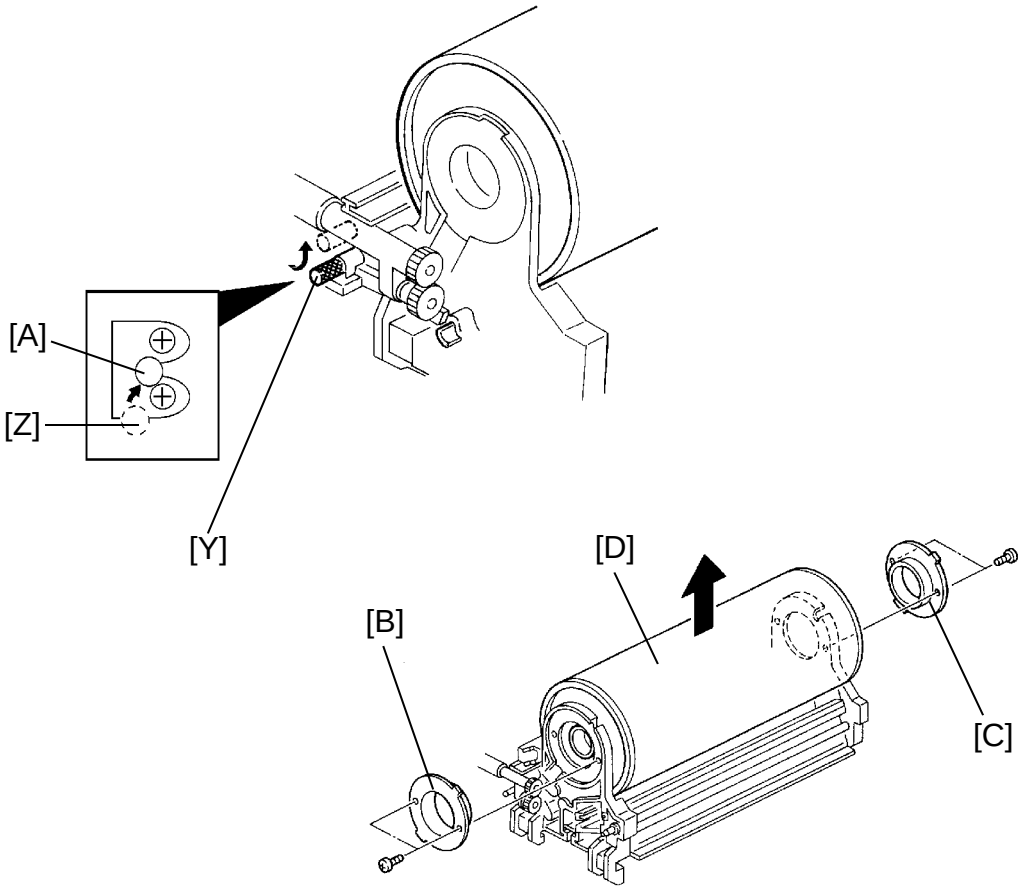






12. Remove the magenta/yellow development unit [R] (1 release lever [S]) and remove the black/cyan development unit [T] (1 release lever [U]).
13. Disconnect the drum's toner collection pipe [V] as shown.
14. Remove the knob screw [W] (counterclockwise) and pull out the quenching lamp.
15. Remove the drum unit [X] (2 screws).

NOTE: Let the unit rest on its casing. Never flip it clockwise, to avoid toner spills.



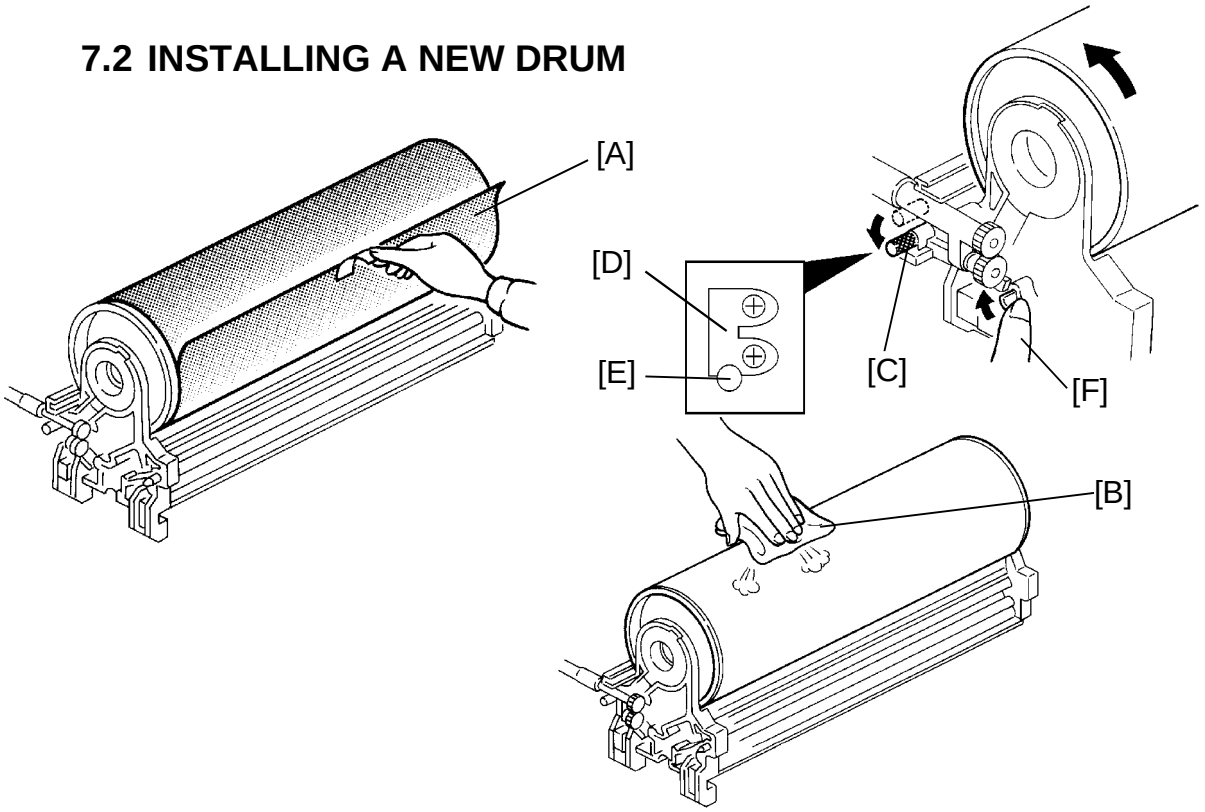
16. Loosen then move the knob [Y] from [Z] to [A].
    - [Z] position = Pressure being applied
    - [A] position = No pressure applied

17. Tighten the knob [Y] at the position [A].

18. Remove the front [B] and rear [C] drum supports (2 screws each).

19. Remove the drum [D].

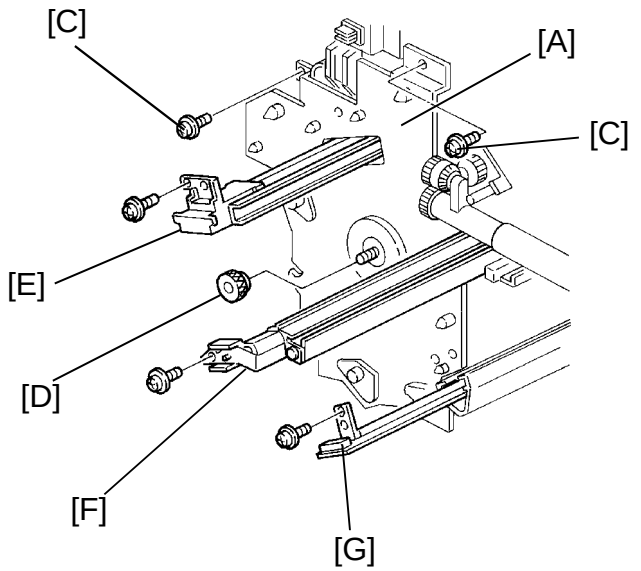
7.2 INSTALLING A NEW DRUM

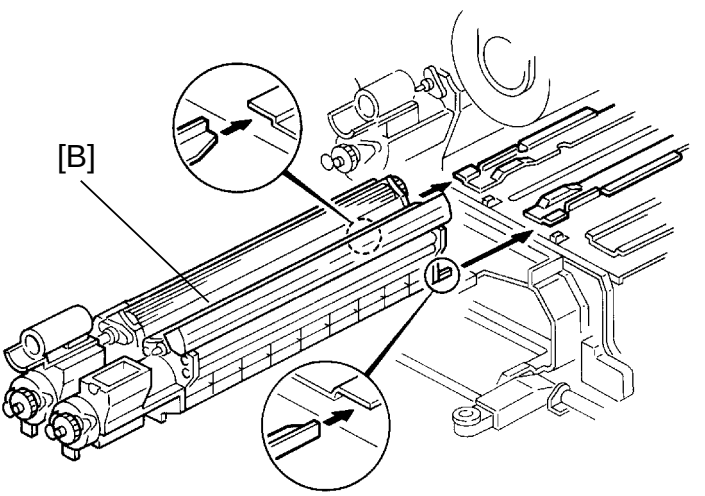


NOTE: 1) If you are re-installing an old drum and an old blade, you don't need to perform steps 4 and 7. If you replace either the blade or the drum, or both, you must apply setting powder.
2) Hold only the edge of the OPC drum to rotate it (within 1 cm, 0.4" from the end).

1. Install the new drum with the protective sheet still on it.
2. Reinstall the front and rear drum supports (2 screws each).
3. Remove the OPC drum protective sheet [A].
4. Apply setting powder [B] to the entire surface of the drum.
5. Loosen then move the knob [C] from [D] to [E].
   - [D] position = No pressure being applied
   - [E] position = Pressure being applied
6. Tighten the knob [C] at the lower position [E].
7. While pressing up the latch [F] to apply the cleaning blade pressure, rotate the OPC drum counterclockwise 3 times to ensure the setting powder is evenly applied, as shown.

   NOTE: Hold only the edge of the OPC drum to rotate it (within 1 cm, 0.4" from the end).

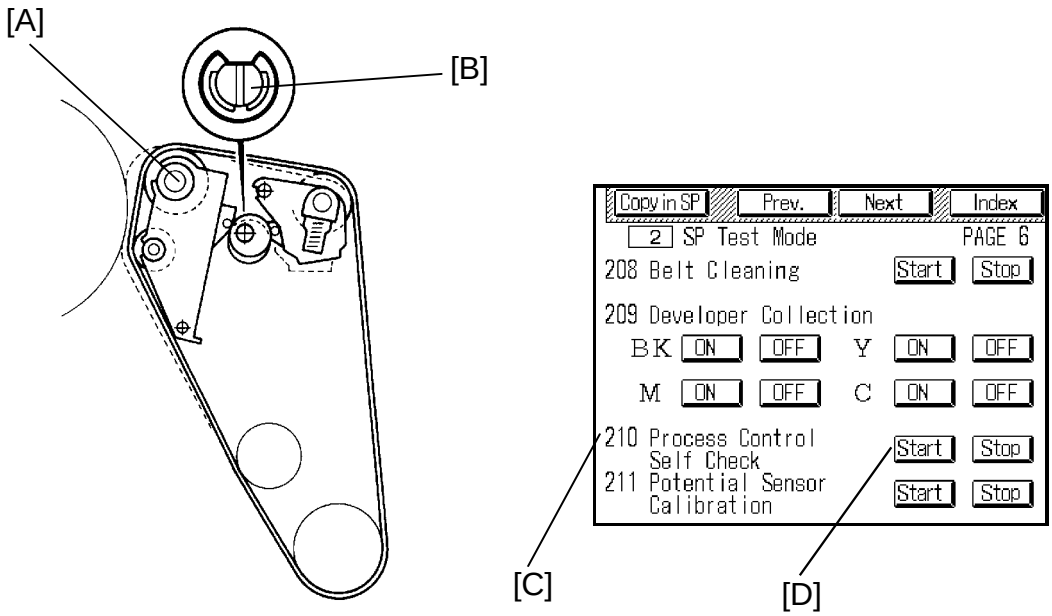




8. Reinstall the following units or parts in the machine as follows.
   1) Slide in the drum unit and secure it to the shaft with the knob screw.
   2) Set the drum stay [A] in position and secure the drum unit (2 screws).
   3) Remove the drum stay [A] and reinstall the quenching lamp, toner collection tube and development units.

   NOTE: When reinstalling the magenta/yellow development unit [B], make sure that the bottom plate fits the rails as shown.

   4) Set the drum stay by securing the 2 screws [C] then the knob [D].
   5) Reinstall the charge corona unit [E], PCC [F], and the ID sensor board [G] (1 screw each).



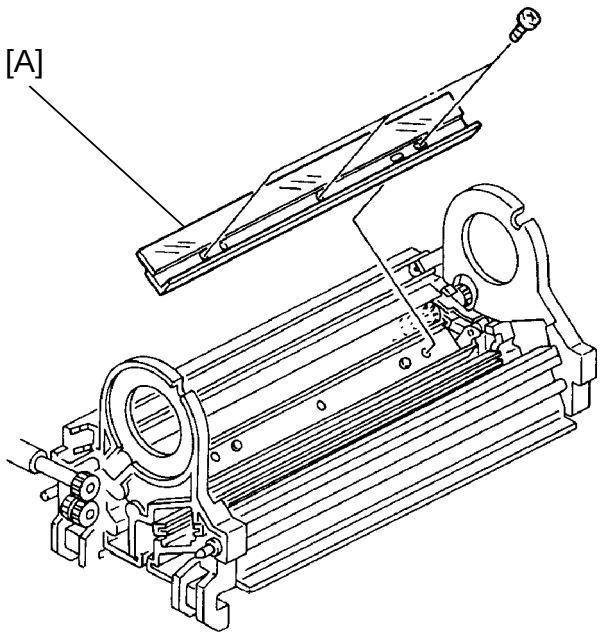
9. Confirm the belt bias roller [A] is in the release position (most inner position) as shown. If not, turn the shaft [B] with a flat head screw drive until the belt bias roller comes in the release position.

   NOTE: If the belt bias roller is not in the release position, it might touch the OPC drum and damage it.

10. Re-install the following units or parts in the following order.
    1) Transfer belt unit
    2) Transfer belt cleaning unit
    3) Transfer belt stay (5 screws)
    4) Three connectors (6P white, 3P red, 3P white)
    5) Toner collection duct (1 hook)

11. Turn on the main switch and perform the "Press Control Self Check" as follows.
    1) Open SP Test Mode P-6, No. 210 (Process Control Self Check) [C].
    2) Touch the Start key [D]. After the self check is completed, the machine stops automatically.
12. Check and adjust the color balance.

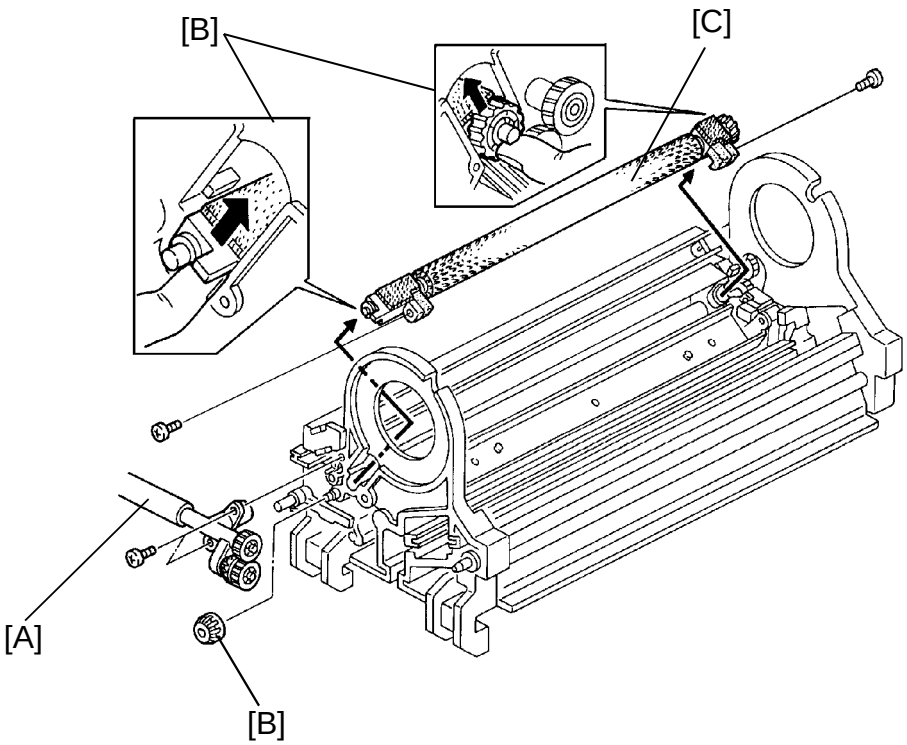
7.3 CLEANING BLADE REPLACEMENT



CAUTION: After replacing the cleaning blade, you must apply setting powder, as mentioned in Installing A New Drum.

1. Remove the drum (See Drum Removal).
2. Remove the cleaning blade [A] (3 screws).
3. Install a new cleaning blade.
4. Install the drum. (See Installing A New Drum.)

7.4 CLEANING BRUSH REPLACEMENT



1. Remove the Cleaning Blade. (See Cleaning Blade and Quenching Lamp Replacement.)
2. Remove the toner collection pipe assembly [A] (2 screws).
3. Remove the gear [B].
4. Remove the cleaning brush assembly [C] (2 screws).

   NOTE: You may need to force it a bit. Do not break off the projection.
5. Remove the E-rings, remove the pads, and reinstall the pads on the new brush.

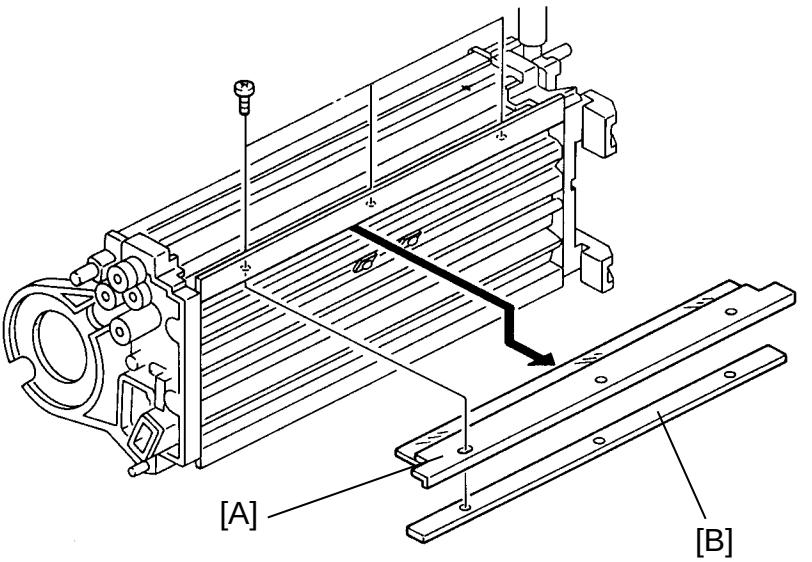
NOTE: When reinstalling, make sure of the following.

a) Reinstall the gear [B]

b) The 2 screws securing the cleaning brush are located as listed below.

long screw (gold) ⟶ front side
short screw (black) ⟶ rear side

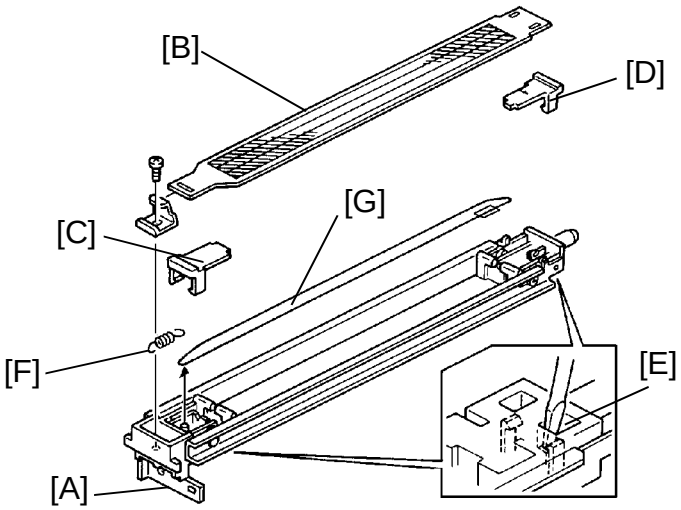
7.5 BIAS ROLLER BLADE REPLACEMENT

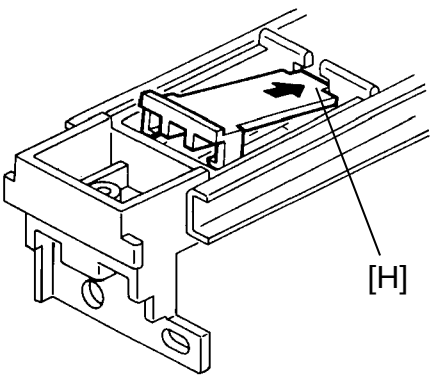


1. Remove the drum. (See Drum Removal.)
2. Remove the bias blade [A] and support bracket [B] (3 screws) and replace the blade.

NOTE: Apply setting powder along the edge of the new bias roller blade.

7.6 CHARGE WIRE REPLACEMENT

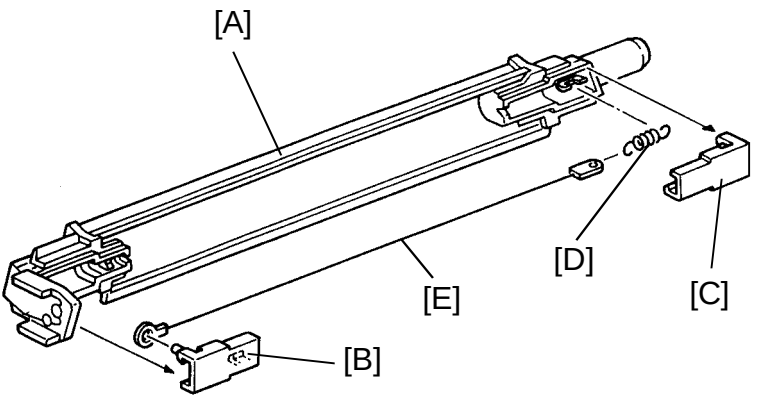




1. Take out the change corona unit [A]. (See Drum Unit Removal Section.)
2. Remove the grid plate [B] (1 screw).
3. Remove the front end block cover [C] and the rear end block cover [D] by using a small screw driver from the rear of the unit as in [E].
4. Remove the terminal spring [F] and then remove the charge corona wire [G].

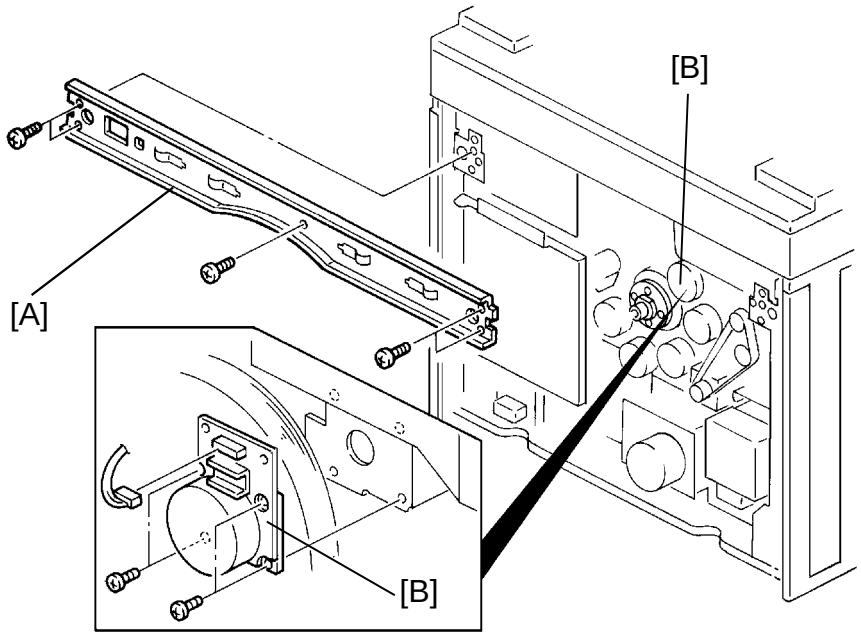
   NOTE: When re-installing the end block covers, insert the tip [H] then push down on the cover.
5. If the grid plate, casing, or the charge wire were replaced or cleaned, perform the "Process Control Self Check" (SP Test Mode P-6, No. 210).

7.7 PRE-CLEANING CORONA WIRE REPLACEMENT



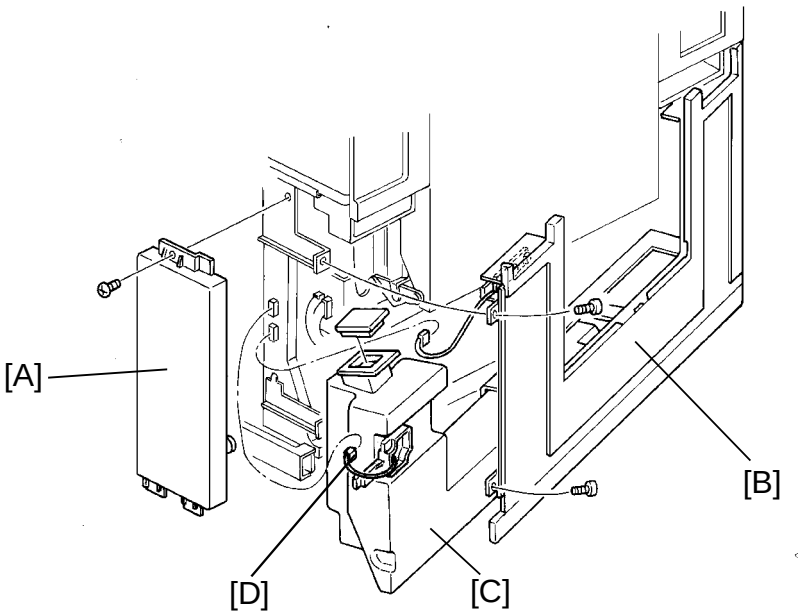
1. Take out the PCC unit [A]. (See Drum Unit Removal Section.)
2. Remove the front [B] and rear [C] end block covers.
3. Remove the terminal spring [D] and then remove the PCC wire [E].

7.8 DRUM MOTOR REPLACEMENT



1. Remove the upper rear cover (4 screws).
2. Remove the supporting frame [A] (5 screws, 2 connectors).
3. Replace the drum motor [B] (4 screws, 1 connector).

7.9 USED TONER TANK REMOVAL

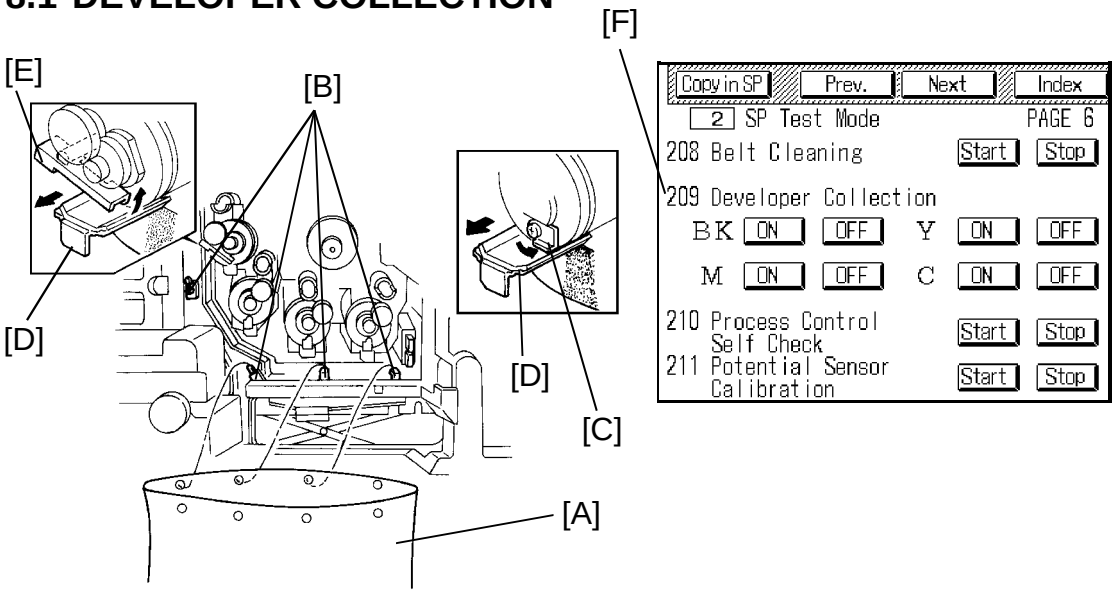


1. Remove the lower front cover [A] (1 screw).
2. Swing open the lower right cover [B] (2 screws) along with the used toner tank [C].
3. Pull out the used toner tank [C] (2 connectors).

NOTE: When re-installing the used toner tank, make sure that the toner overflow sensor connector [D] is inserted firmly.

8. DEVELOPMENT SECTION

8.1 DEVELOPER COLLECTION



NOTE:
- The machine must be at the "READY" condition to perform the developer collection.
- To maintain good color copy quality, the developer replacement should be performed for all colors at the same time so that all the developers have similar characteristics.
- For more detailed information concerning the access of SP modes, refer to section 4 (Service Program Mode Operation).
- Before performing this procedure, place old newspapers on the floor to keep the customer site clean.
- Collect 2 developers per bag (black and cyan, magenta and yellow).

1. Open the front door and remove the toner tank unit (2 screws).
2. Place the developer collection bag [A] to the hooks [B] on the copiers frame.
3. Turn on the front safety switch using the accessory switch actuator. Wait until the machine is at the 'READY' condition.
4. Swing the Stopper bracket [C] then pull the collection cover [D] of the desired development unit. Developer will fall into the bag.

   NOTE: For black developer, shift the lever [E] instead of the stopper bracket [C].
5. Enter SP mode and open SP Test Mode P-6, No. 209 (Developer Collection) [F].

6. Press "ON" for the desired developer to be collected.

   NOTE: Support the developer bag [A] while performing this procedure.

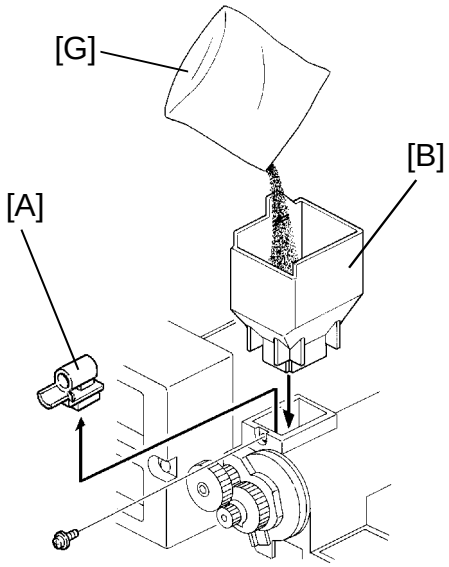
7. Wait until the developer is collected completely (about 2 to 3 minutes) and press "OFF".

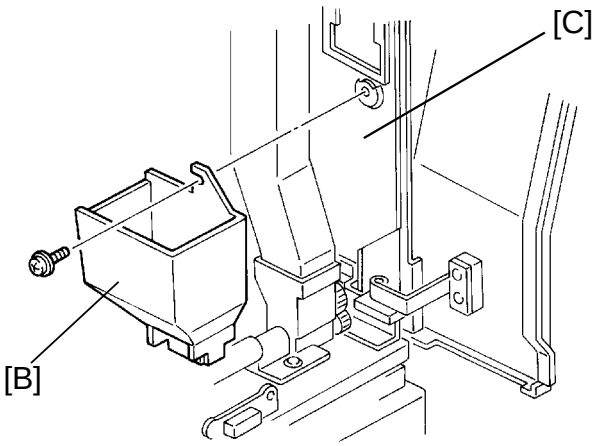
8. Perform the same procedures for the other developers.

9. Reinstall the collection cover [B].

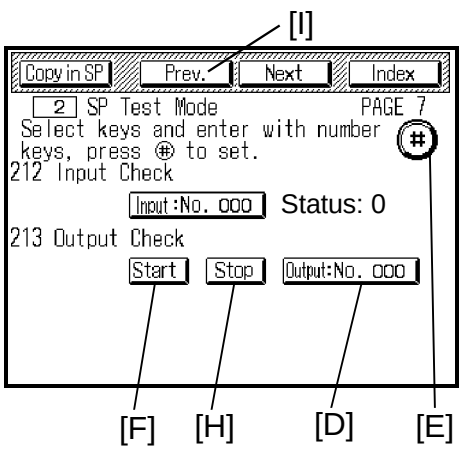
   NOTE: For black developer, make sure to shift back the lever.

8.2 DEVELOPER INSTALLATION





1. From the Developer Collection section procedure step number 9 condition, remove all the toner supply receptacles [A] (1 screw).
2. Remove the right inner cover. (See Right Inner Cover Removal section.)
3. Remove the developer supply funnel [B] from the bracket [C] (1 screw).
4. Clean the inner surface of the developer supply funnel.
5. Set the developer supply funnel on the black development section.
6. Enter SP mode and open SP Test Mode P-7, No. 213 (Output Check).
7. Touch the key [D] to enter the output mode.
8. Enter "30" by using the number keys then touch the enter key [E], to select test mode #30 "black development drive motor ON".
9. Touch the start key [F].
10. Shake a pack of black developer [G] 20 times
    then pour them in.



11. One minute after pouring the developer, touch the Stop key [H].

NOTE: Do not touch the stop key within 1 minute, otherwise the developer will not be evenly distributed in the unit.

Replacement Adjustment

12. Remove the developer supply funnel, then reinstall the toner supply receptacle.

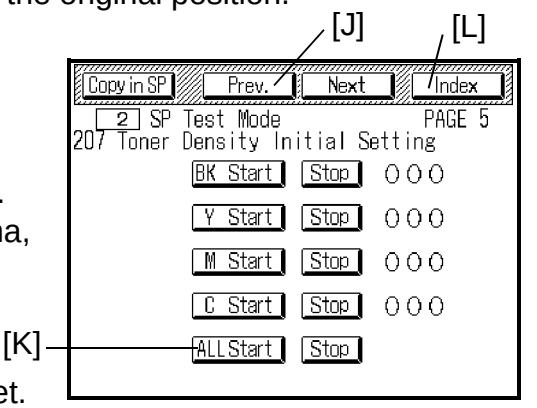
13. Install the cyan, magenta and yellow developer in the same manner as black developer installation (Step #4 to #12).

    NOTE: To select the "color development drive motor ON" mode, enter "31" for color instead of 30 for black (refer to Step #8).

14. Return the developer supply funnel to the original position.

15. Touch the Previous key [J] to open page 5.

16. Perform the Toner Density Initial Setting with new developer as follows.
    1) Confirm that the main charge corona, PCC, ID sensor boards are set correctly (1 screw each).



    2) Confirm that the toner tank is not set.

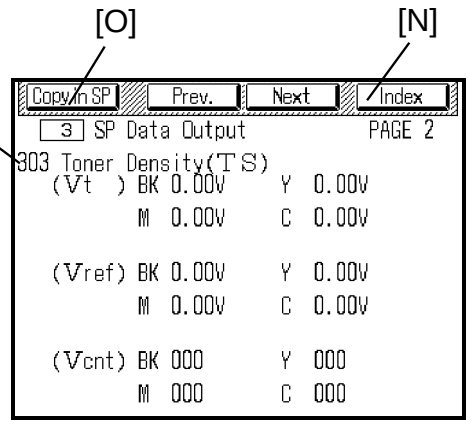
    NOTE: If the toner tank is set, toner is supplied during the developer initial setting and the machine cannot figure out the proper toner concentration of the new developer.

    3) Touch the All Start key [K] to start the developer initial setting.
    After the process is completed, the machine stops automatically.

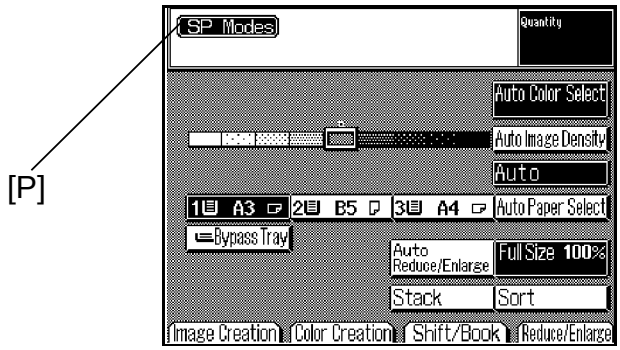
17. Touch the Index key [L].

18. Open SP Data Output P-2, No 303 (Toner Density) [M].
19. Confirm whether if the VT has the same values as Vref for all colors (Bk, Y, M, C). If not, touch the Index key [N] then return to the test mode page 5 to perform the developer initial setting (step 16) again.
20. Set the toner tank (2 screws) and close the front doors.
21. Touch the Copy in SP key [O] and place the C-4 test chart on the exposure glass.
22. Take 30 full color copies using A3 or 11" x 17" size paper.
23. Wait 5 minutes to ensure that no residual voltage remains on the OPC drum.

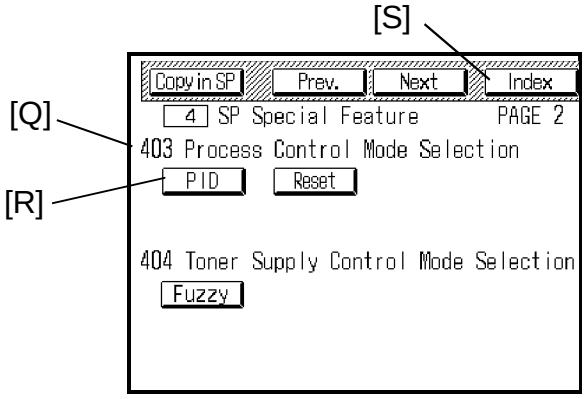
    NOTE: The process control self check (step 29) must be performed when there is no residual voltage on the OPC drum.



24. Touch the SP Modes key [P] to enter the SP mode.
25. Touch the Index key [N].

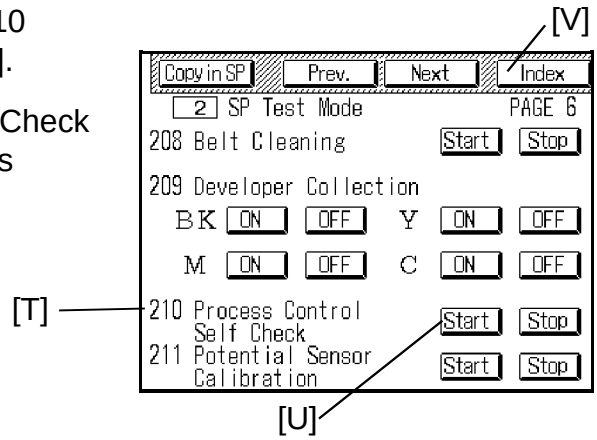


26. Open SP Special Feature P-2, No. 403. (Process Control Mode selection) [Q].
27. Confirm that the PID key [R] is selected for the Process Control Mode Selection. If not, touch the PID key.
28. Touch the Index key [S].

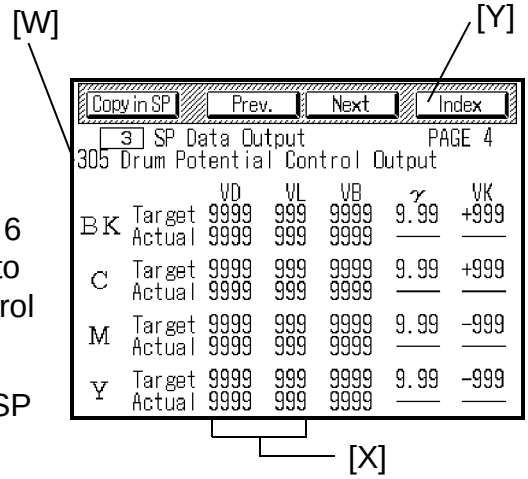


Replacement Adjustment

29. Open SP Test Mode P-6, No. 210 (Process Control Self Check) [T].
30. Touch the Process Control Self Check Start key [U]. After the process is completed, the machine stops automatically.
31. Touch the Index key [V].

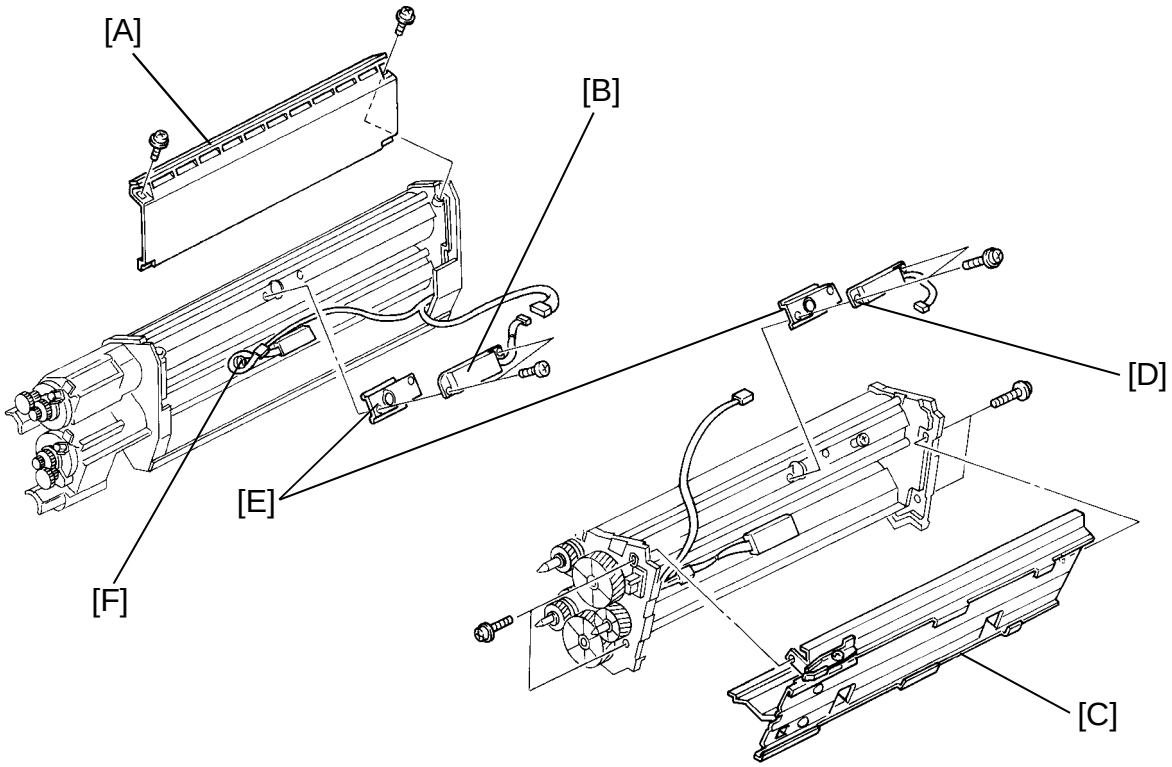


32. Open SP Data Output P-4, No. 305 (Drum Potential Control Output) [W].
33. Check the V_D and V_L [X] for each developer. If any of the output data is 6 or more, wait 5 minutes and go back to step 27 and perform the process control self check again.
34. Touch the Index key [Y] and exit the SP modes.



35. Turn off the main switch and place the accessory switch actuator to it's original position.
36. Reinstall all parts.
37. Check the copy image and adjust the color balance if necessary.

8.3 TONER DENSITY SENSOR REPLACEMENT



NOTE: When replacing the toner density sensor (any color), developer for all colors must be replaced so that all have similar characteristics.

1. Collect the developer. (See Developer Collection section.)
2. Remove both development units. (See Installation Procedure section.)

-Black and Cyan-

3. Remove the black and cyan development unit cover [A] (2 screws).
4. Replace the desired toner density sensor [B] (2 screws and 1 connector).

-Magenta and Yellow-

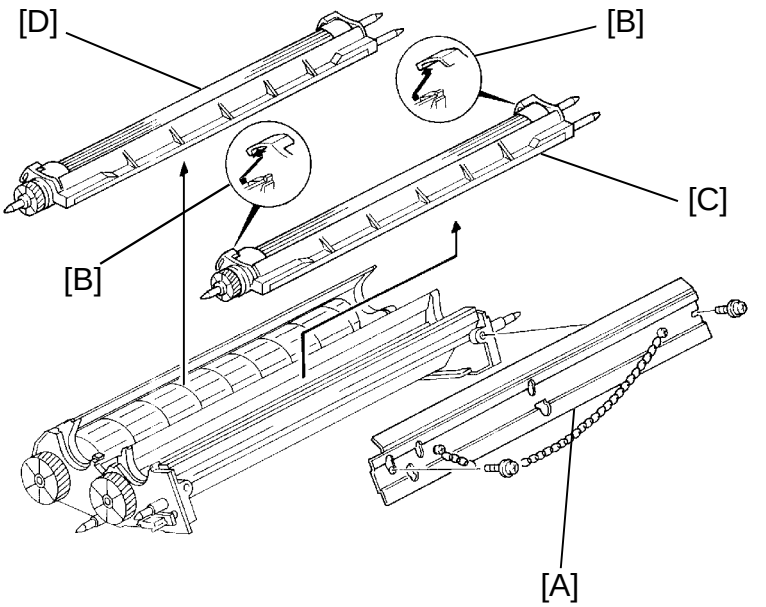
3. Remove the magenta and yellow development unit base [C] (4 screws).
4. Replace the desired toner density sensor [D] (2 screws and 1 connector).

NOTE: When reinstalling, make sure of the following.

- The spacer [E] is secured firmly to prevent developer from spilling out.
- Mount the harness over the stepping screw [F].

5. Install new developer. (See Developer Installation section.)

8.4 DEVELOPMENT ROLLER ASSEMBLY REPLACEMENT



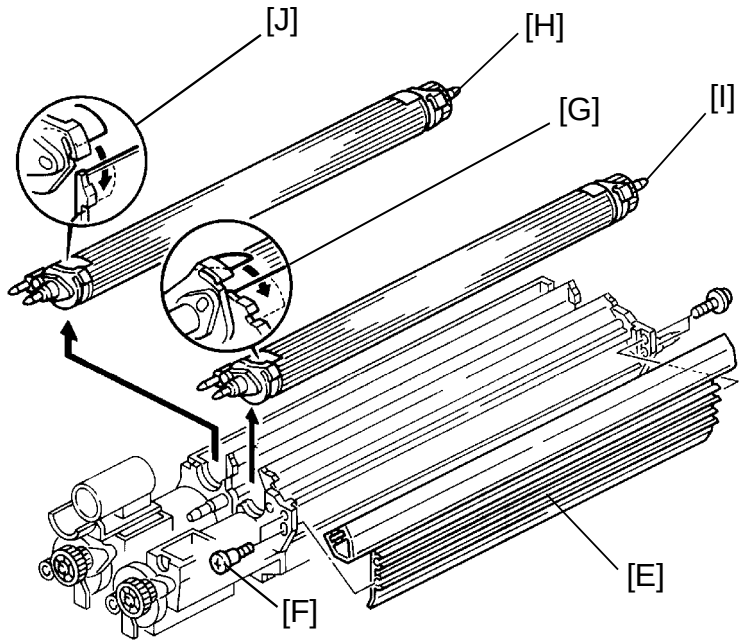
CAUTION: Never disassemble the development roller assembly. The unit is adjusted with special tools and instruments at the factory to ensure the proper doctor gap.

1. Collect the developer. (See Developer Collection section.)
2. Remove both development units. (See Installation Procedure section.)

-Black and Cyan-

3. If replacing the black development roller assembly, remove the black and cyan development unit guide rail [A] (2 screws).
4. Lift the latches on both sides over the pegs [B] and pull the black development roller assembly [C] or the cyan development roller assembly [D] out.

-Magenta and Yellow-

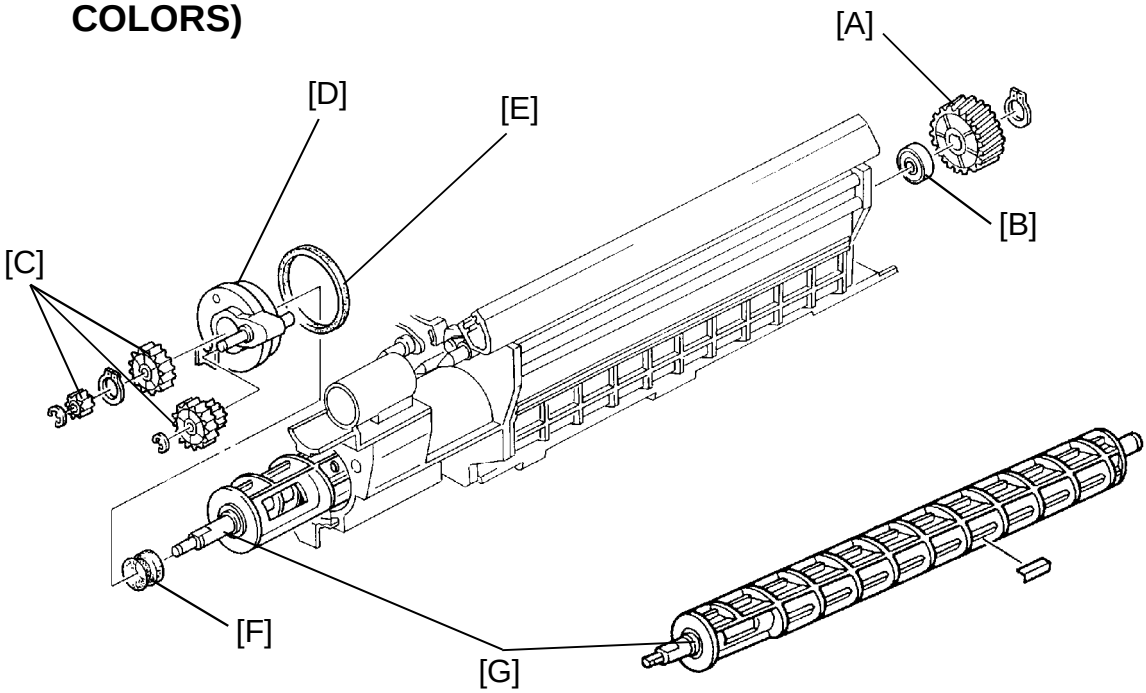


3. If replacing the yellow development roller assembly, remove the magenta and yellow development unit left cover [E] (2 stepping screws [F] and 2 screws).
4. Lift the latches on both sides over the pegs [G] and pull the magenta [H] or yellow [I] development roller assembly out.

NOTE: When reinstalling, make sure to tuck all the inlet seals inside the casing as shown [J].

5. Install new developer. (See Developer Installation section.)

8.5 DUAL MIXING ROLLER REPLACEMENT (FOR ALL COLORS)

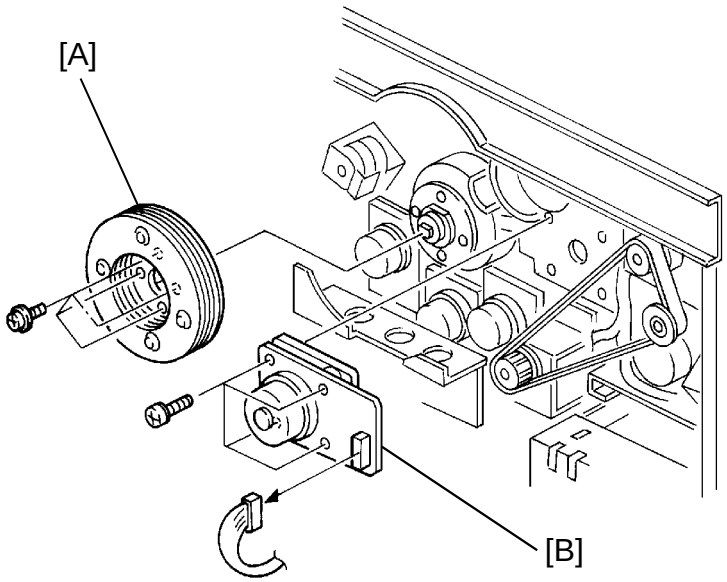


1. Collect the developer. (See Developer Collection section.)
2. Remove the desired development unit. (See Installation procedure section.)
3. Remove the gear - 40z [A] and bearing [B] at the rear of the unit (1 C-ring).
4. Remove the 3 gears [C] (2 E-rings and 1 C-ring) then the flange [D] and the seal [E].
5. Pull out the dual mixing roller and remove the rubber ring [F].
6. Replace the dual mixing roller [G].

NOTE: When reinstalling, make sure that the rubber ring [F] and the flange seal [E] are secured firmly to prevent developer from spilling out.

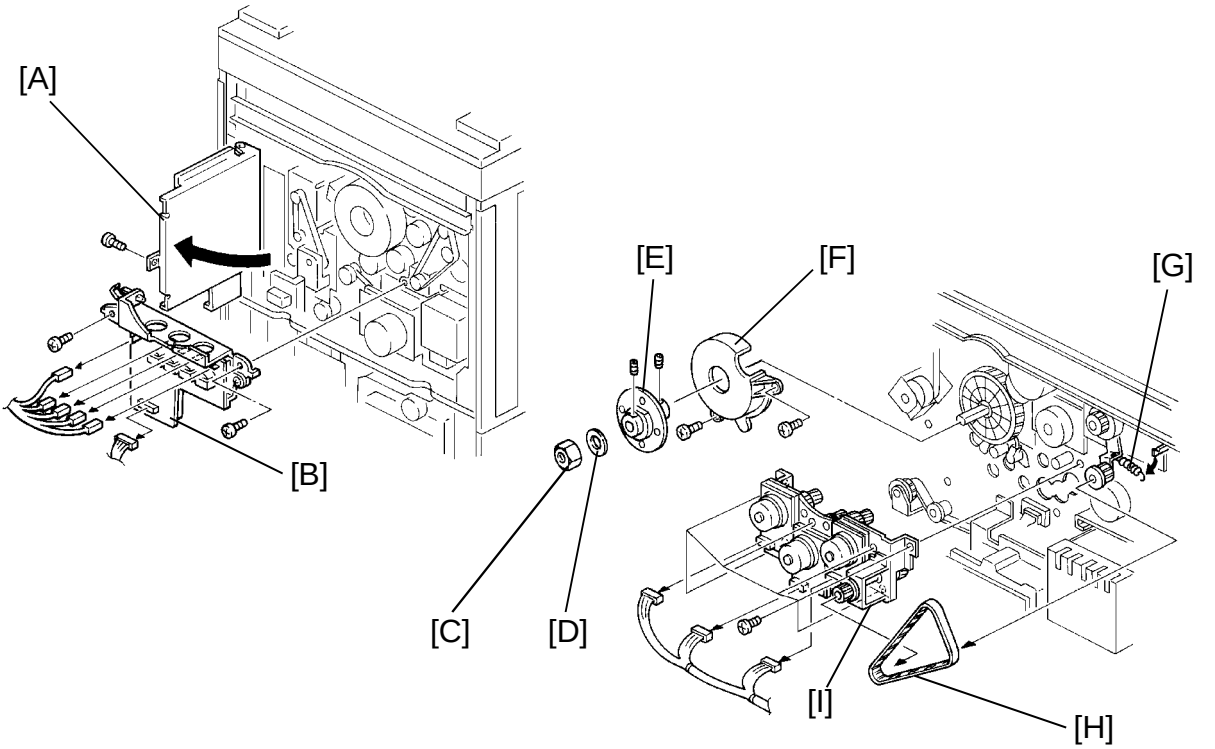
7. Install new developer. (See Developer Installation section.)

8.6 BLACK SLEEVE MOTOR REPLACEMENT



1. Turn off the main switch and unplug the machine.
2. Remove the upper rear cover and the fly wheel [A] (4 screws).
3. Replace the black sleeve motor [B] (4 screws and 1 connector).

8.7 COLOR SLEEVE MOTOR REPLACEMENT

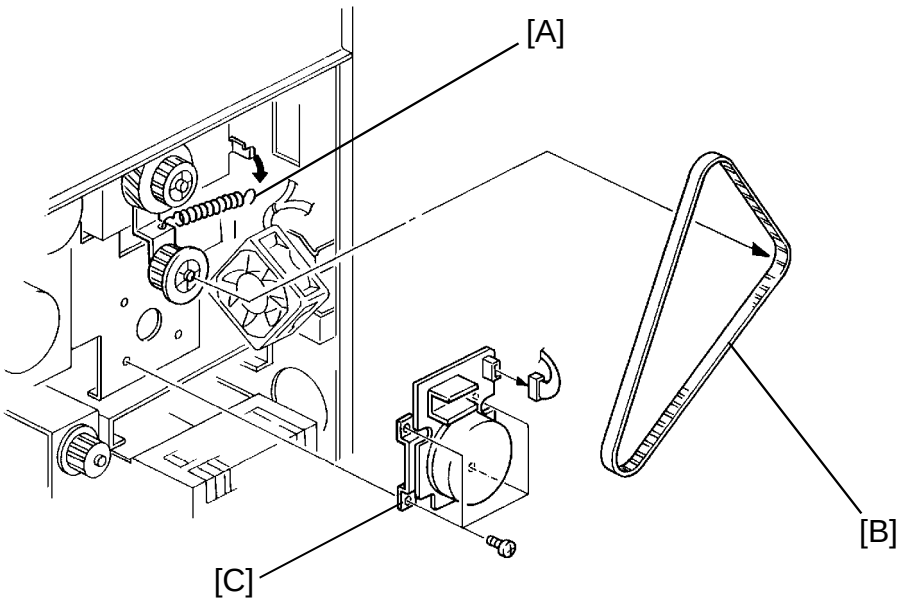


1. Turn off the main switch and unplug the machine.
2. Remove the upper rear cover and swing open the main board [A] (1 screw).
3. Remove the fly wheel (4 screws). (See Black Sleeve Motor Replacement.)
4. Remove the development bias high voltage supply board [B] (2 screws and 6 connectors).
5. Remove the nut [C] on the shaft with the spacer [D].
6. Remove the fly wheel supporting bracket [E] (2 Allen screws).
7. Remove the drum drive gear cover [F] (2 screws).
8. Remove the tension spring [G] and free the timing belt [H].
9. Remove the color sleeve motor bracket [I] (6 screws and 3 connectors).
10. Replace the desired sleeve motor.

NOTE: • Each color sleeve motor can be removed from the copier simply by unscrewing 4 screws.
However we recommend removing the bracket assembly so you can verify that the sleeve gears are not worn or chipped.

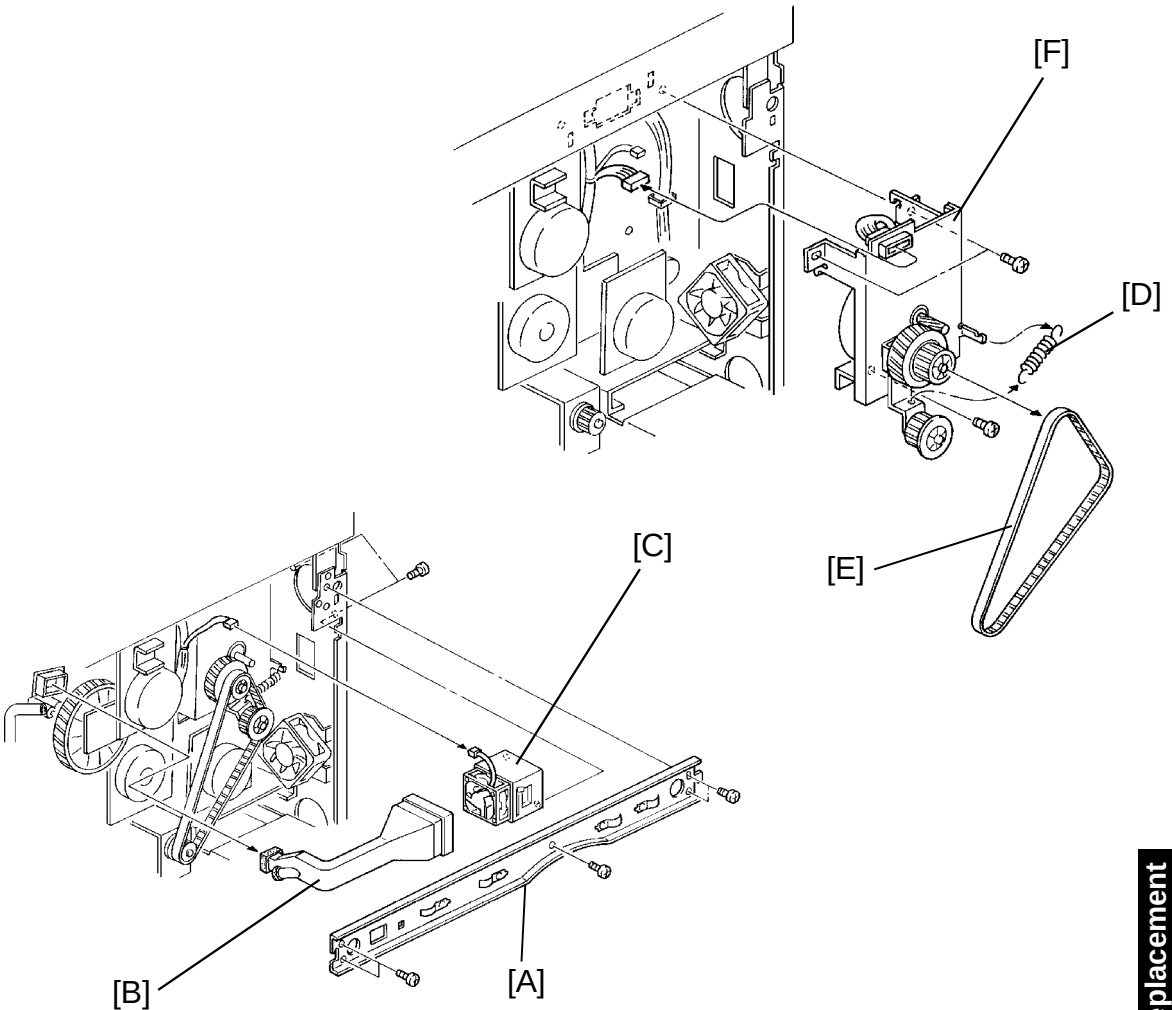
- When reinstalling, make sure of the followings.
  Set the fly wheel supporting bracket [E] on the shaft without securing the 2 Allen screws. Place the spacer [D] and tighten the nut [C], then secure the fly wheel supporting bracket [E], with Allen screws.
  Grasp the fly wheel supporting bracket [E] gently and confirm that the drum shaft doesn't move in the front to back direction. (No play on the shaft.) If there's movement, repeat the reinstallation procedure again and tighten the nut [C] more strongly.
  After reinstallation take a full color copy.
  If the copy image is mis-aligned, go back to the reinstallation procedure and tighten the nut [C] a little more loosely.

8.8 BLACK DEVELOPMENT DRIVE MOTOR REPLACEMENT



1. Turn off the main switch and unplug the machine.
2. Remove the upper rear cover (4 screws).
3. Remove the tension spring [A] and free the timing belt [B].
4. Replace the black development drive motor [C] (4 screws and 1 connector).

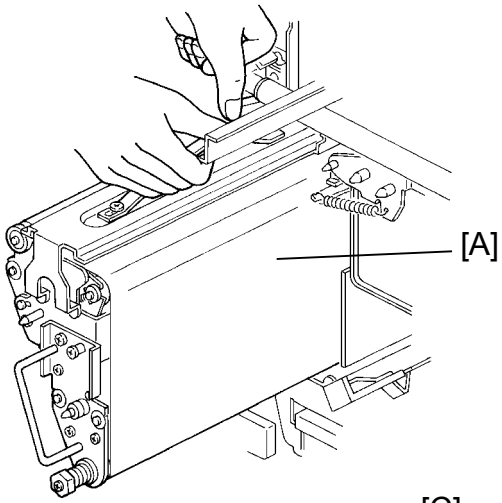
8.9 COLOR DEVELOPMENT DRIVE MOTOR REPLACEMENT

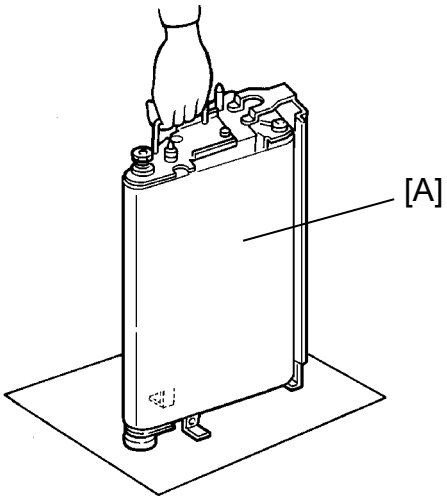


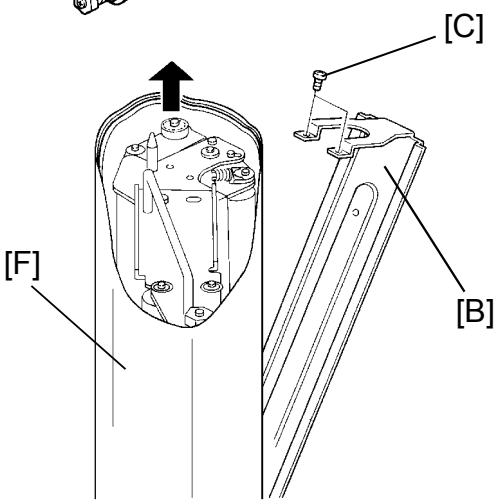
1. Turn off the main switch and unplug the machine.
2. Remove the upper rear cover (4 screws).
3. Remove the supporting frame [A] (5 screws and 2 connectors).
4. Remove the exhaust duct [B].
5. Remove the upper left cover. (See Upper Left Cover Removal.)
6. Remove the charge inlet fan [C] (2 screws and 1 connector).
7. Remove the tension spring [D] and free the timing belt [E].
8. Remove the color development drive motor bracket [F] (3 screws and 1 connector).
9. Replace the motor.

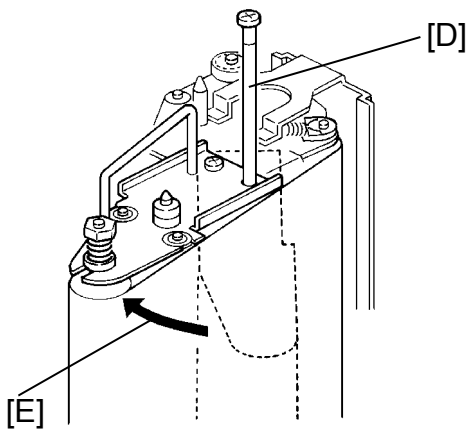
9. TRANSFER BELT SECTION

9.1 TRANSFER BELT REPLACEMENT

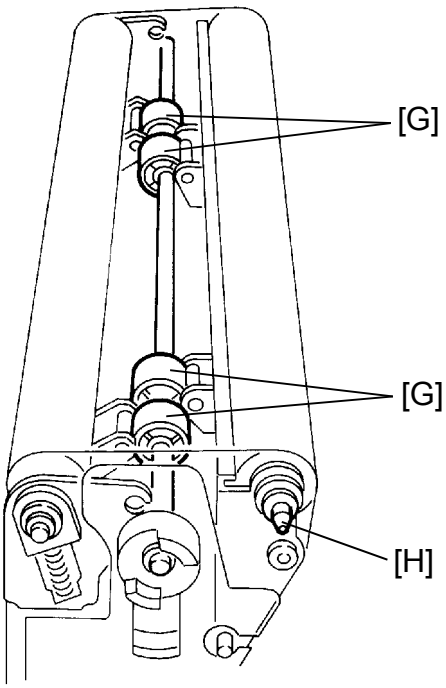


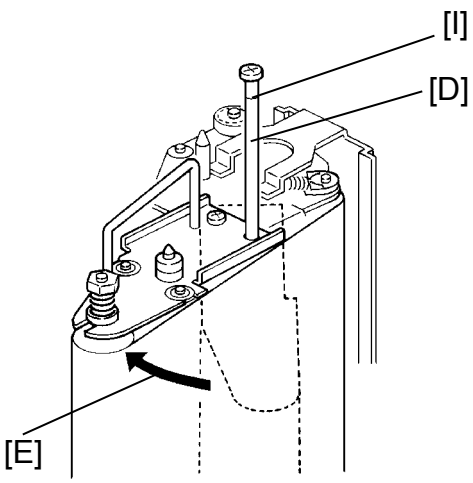






1. Remove the following parts and pull out the transfer belt unit [A]. (Refer to section 3 Installation).
   - Toner tank
   - Right inner cover
   - Yellow toner supply receptacle
   - Transfer belt Cleaning unit
   - Transfer belt stay
2. Make the transfer belt unit [A] stand as shown.
3. Move the handle bracket [B] out of the way by unscrewing the 2 screws [C].
4. Unscrew the securing screw shaft [D].
5. Release the tension of the transfer belt by folding the unit [E].
6. Remove the transfer belt [F] and clean all the rollers.





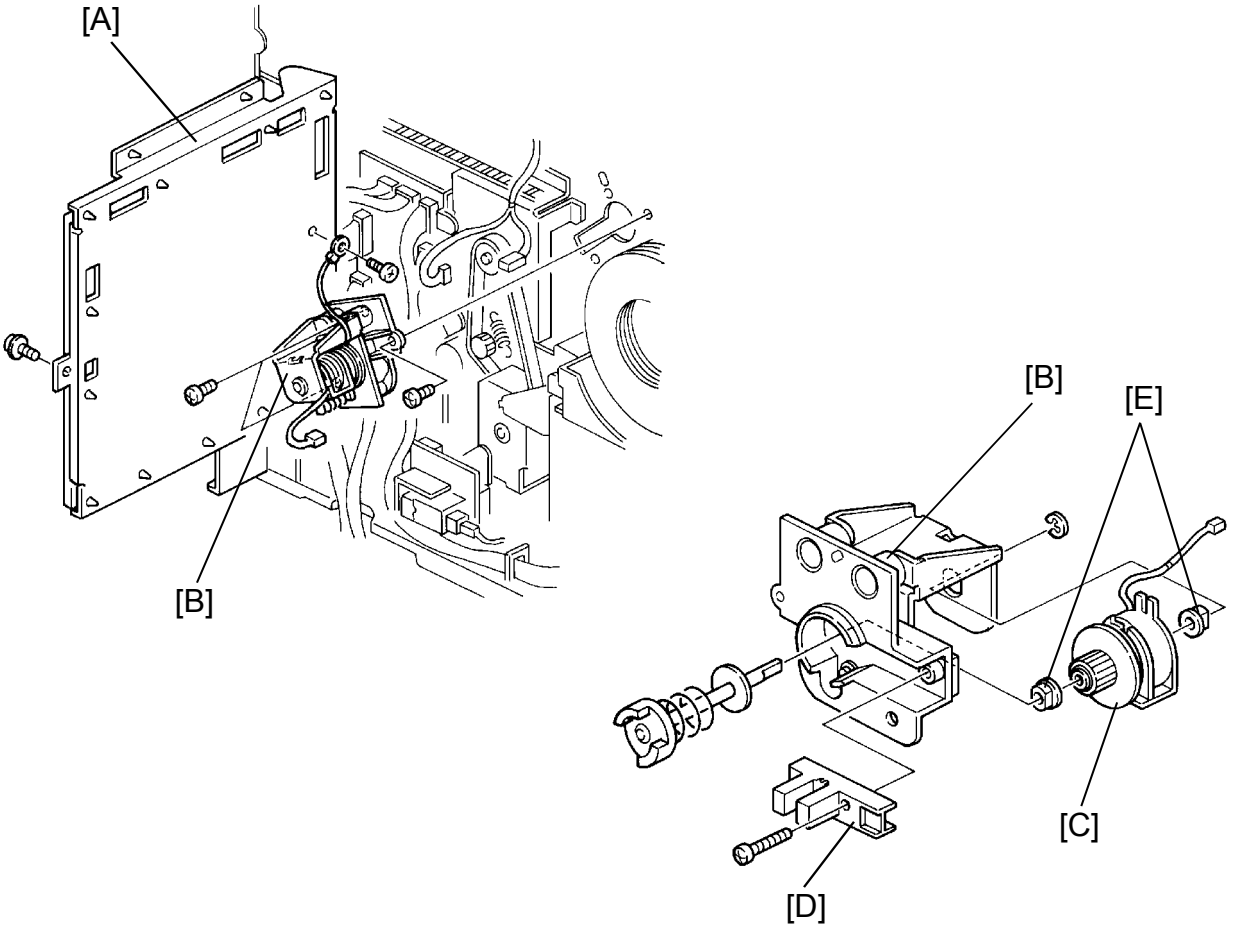
NOTE: Make sure of the following points.

- The transfer belt release cams [G], belt bias roller shaft [H] (only at the end) should be lubricated with silicone grease G40M every 40 k scans.
- Never touch the new transfer belt surface with your oily bare hands.
- Screw in the securing screw shaft down to the marked line [I].
- Manually turn the rollers and check that the transfer belt does not run over any of the rollers.
- Install the transfer belt unit, then the transfer belt cleaning unit.
- Confirm that the belt bias roller is in the release position.

7. Perform the belt cleaning mode by using SP TEST MODE P-6, No. 208. This mode will automatically stops after about 15 seconds.

8. Check the copy image and adjust the color balance if necessary.

9.2 TRANSFER BELT POSITION CLUTCH AND TRANSFER BELT POSITION SENSOR REPLACEMENT

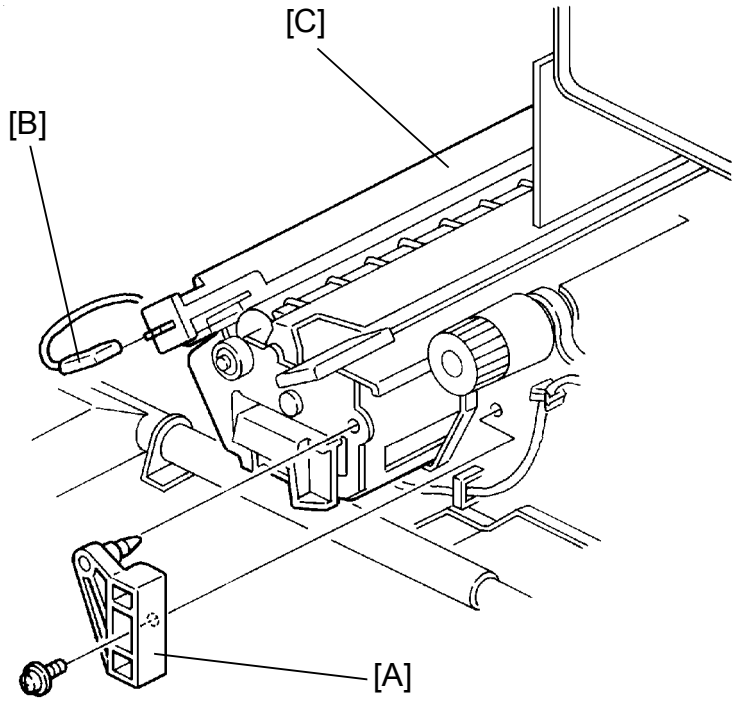


1. Turn off the main switch and unplug the machine.
2. Remove the upper rear cover (4 screws).
3. Swing open the main board [A] (1 screw).
4. Remove the transfer belt position clutch bracket [B] (3 screws, 1 grounding screw and 2 connectors).
5. Replace the transfer belt position clutch [C] (1 E-ring) or the transfer belt position sensor [D] (1 screw)

NOTE: When installing the new clutch [C], make sure to place the bushings [E] from inside of the bracket [B] as illustrated.

10. TRANSFER ROLLER UNIT

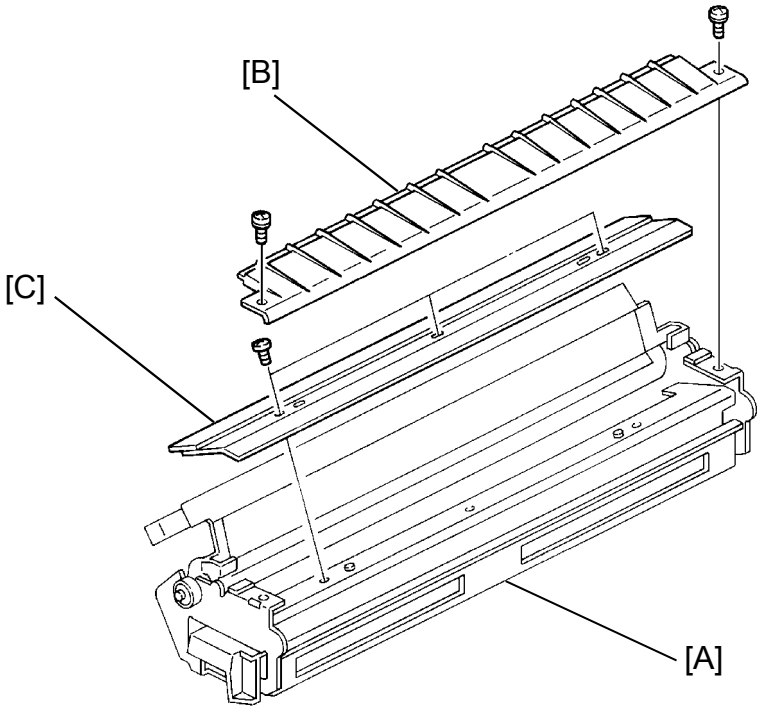
10.1 TRANSFER ROLLER UNIT REMOVAL



1. Turn off the main switch and unplug the machine.
2. Open the front doors and remove the right inner cover (3 screws).
3. Lower the toner collection duct (1 hook).
4. Remove the transfer roller unit positioning bracket [A] (1 screw).
5. Disconnect the paper discharge plate connector [B] and slide out the transfer roller unit [C].

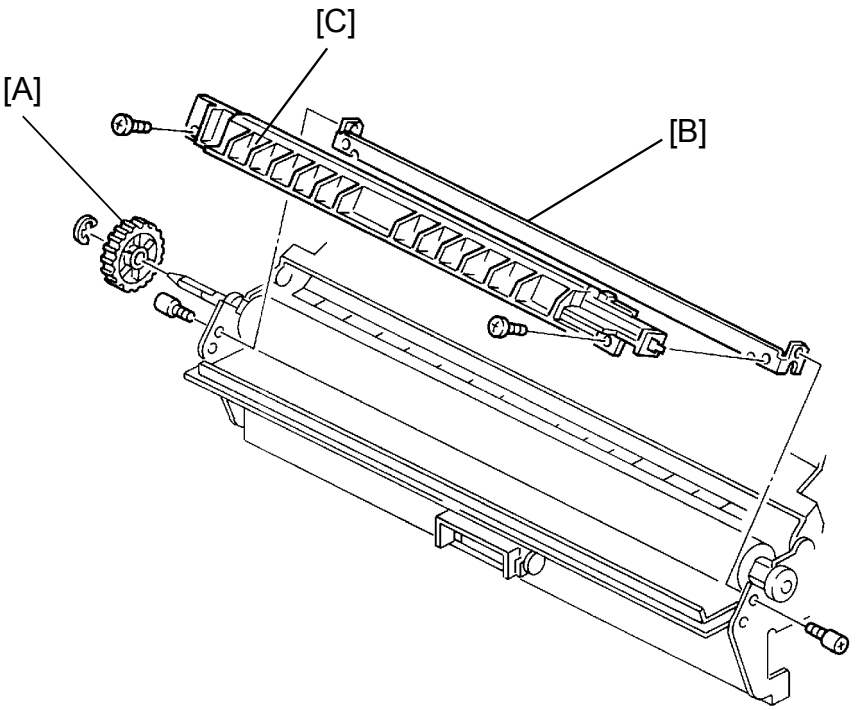
NOTE: When reinstalling, make sure that the unit's gear does not damage the transfer belt located above.

10.2 TRANSFER ROLLER BLADE REPLACEMENT



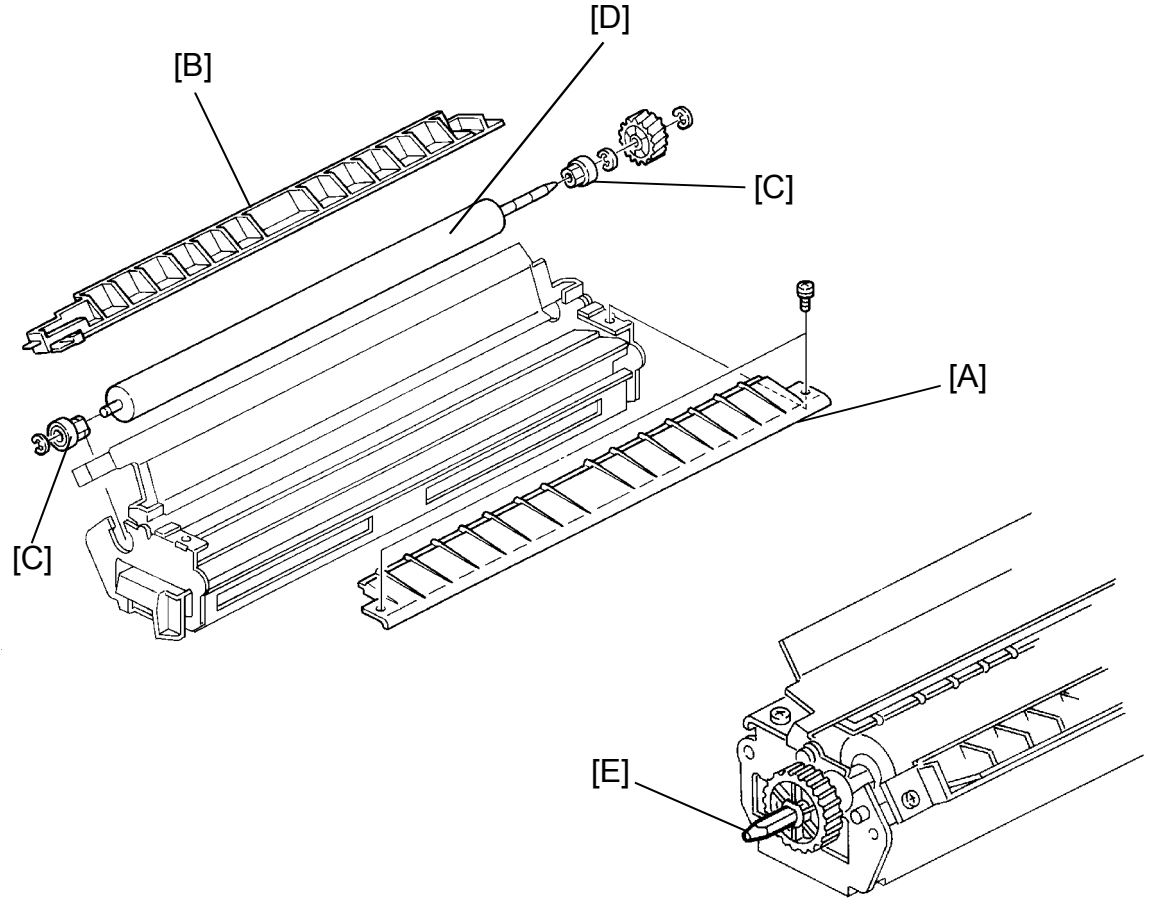
1. Remove the transfer roller unit [A]. (Refer to the Transfer Roller Unit Removal section.)
2. Remove the transfer roller guide plate [B] (2 screws).
3. Replace the transfer roller blade [C] (3 screws).

10.3 PAPER DISCHARGE PLATE REPLACEMENT



1. Remove the transfer roller unit. (Refer to the Transfer Roller Unit Removal section.)
2. Remove the transfer roller drive gear [A] (1 E-ring).
3. Remove the paper discharge plate with the bracket on [B] (2 positioning screws).
4. Remove and replace the paper discharge plate [C] (2 screws).

10.4 TRANSFER ROLLER REPLACEMENT

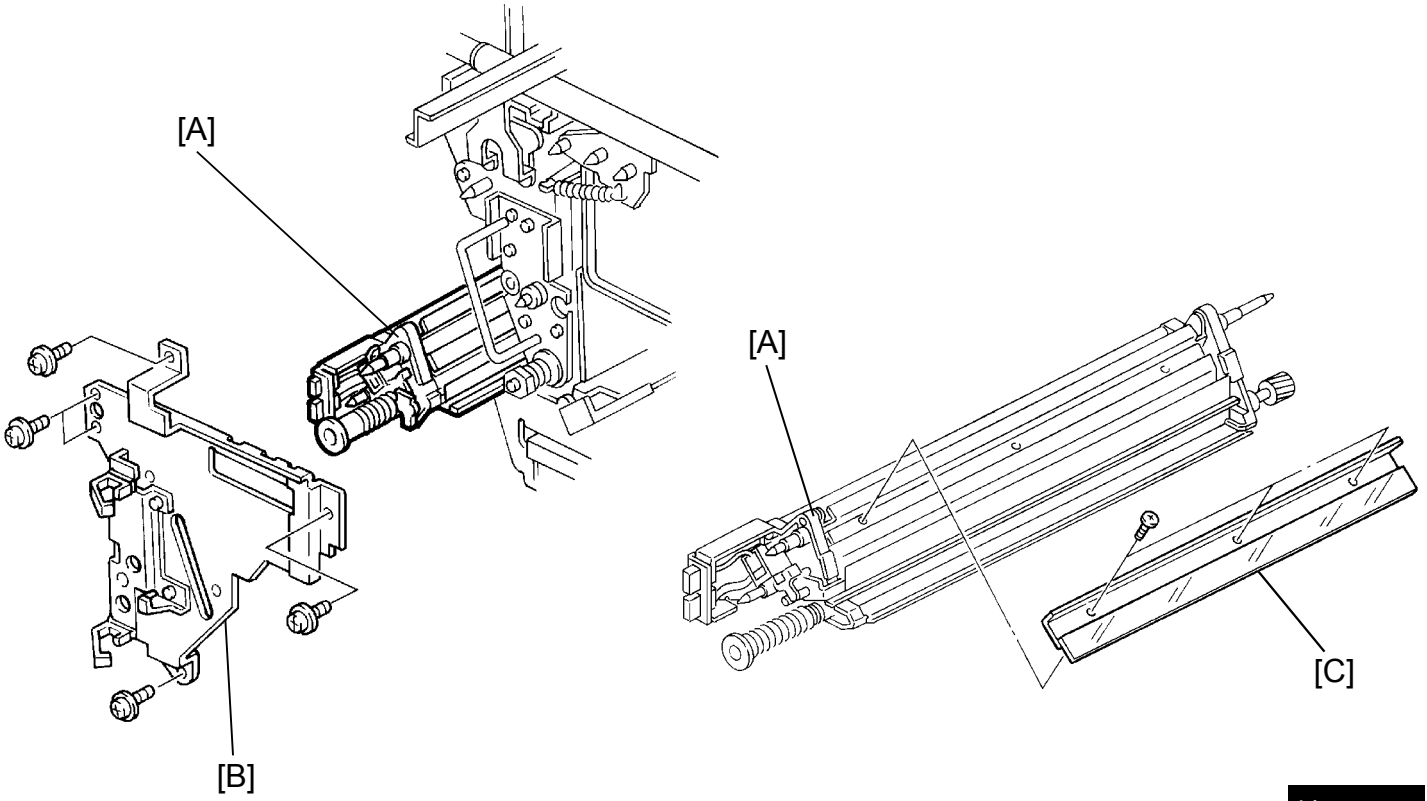


1. Remove the transfer roller unit. (Refer to the Transfer Roller Unit Removal section.)
2. Remove the transfer roller guide plate [A] (2 screws).
3. Remove the paper discharge plate with the bracket on [B]. (Refer to the Paper Discharge Plate Replacement section.)
4. Remove the bushings [C] (1 E-ring each).
5. Replace the transfer roller [D].

NOTE: The end of the transfer roller shaft [E] should be lubricated with silicone grease G40M every 40 k scans.

11. TRANSFER BELT CLEANING UNIT

11.1 TRANSFER BELT CLEANING BLADE REPLACEMENT



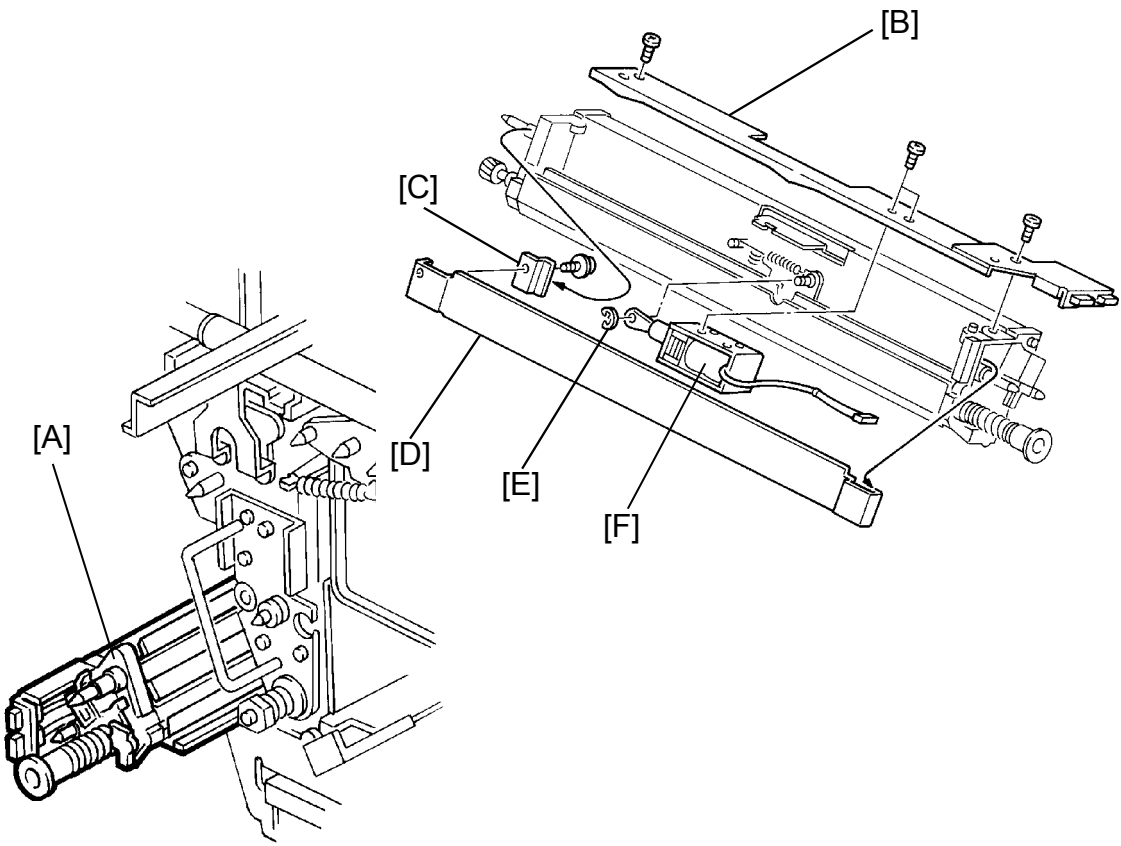
1. Remove the following parts and slide out the transfer belt cleaning unit [A]. (Refer to section 3 Installation.)
   - Toner tank
   - Right inner cover
   - Yellow toner supply receptacle
   - Transfer belt stay [B].

2. Replace the Cleaning blade [C] (3 screws).

NOTE: When reinstalling a new blade, make sure of the following:

- Do not touch the rubber part of the new cleaning blade with your bare hands.
- Dust with setting powder after replacement.
- The cleaning blade solenoid and the entrance seal solenoid's plungers must be in (no contact position with the transfer belt).

11.2 CLEANING BLADE SOLENOID REPLACEMENT

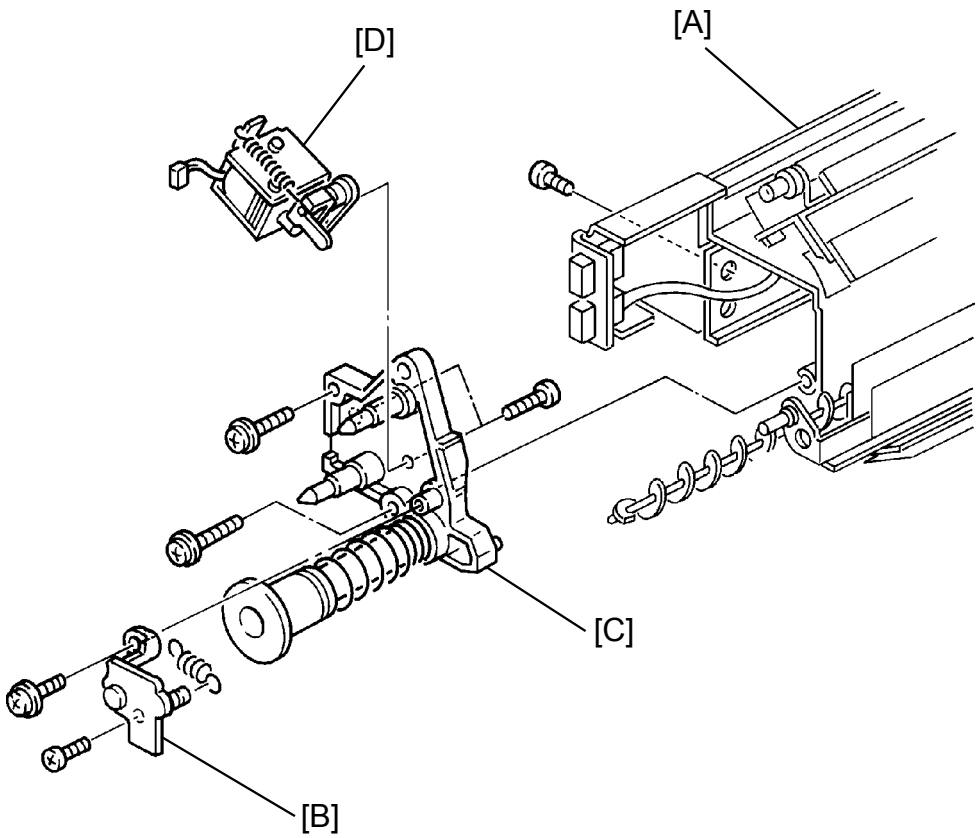


1. Remove the belt cleaning unit [A]. (Refer to the Transfer Belt Cleaning Blade Replacement section.)
2. Disconnect the blade solenoid connector and the entrance seal solenoid connector.
3. Remove the blade solenoid bracket [B] (2 screws).
4. Remove the base plate securing bracket [C] (1 screw) and remove the base plate [D].
5. Remove the blade solenoid plunger E-ring [E].
6. Replace the blade solenoid [F] (2 screws).

NOTE: When reinstalling make sure of the following:

- Set the arm hole of the solenoid plunger to the pin first, then screw the solenoid bracket.
- The cleaning blade solenoid's plunger must be in (no contact position with the transfer belt).

11.3 TRANSFER BELT CLEANING ENTRANCE SEAL SOLENOID REPLACEMENT

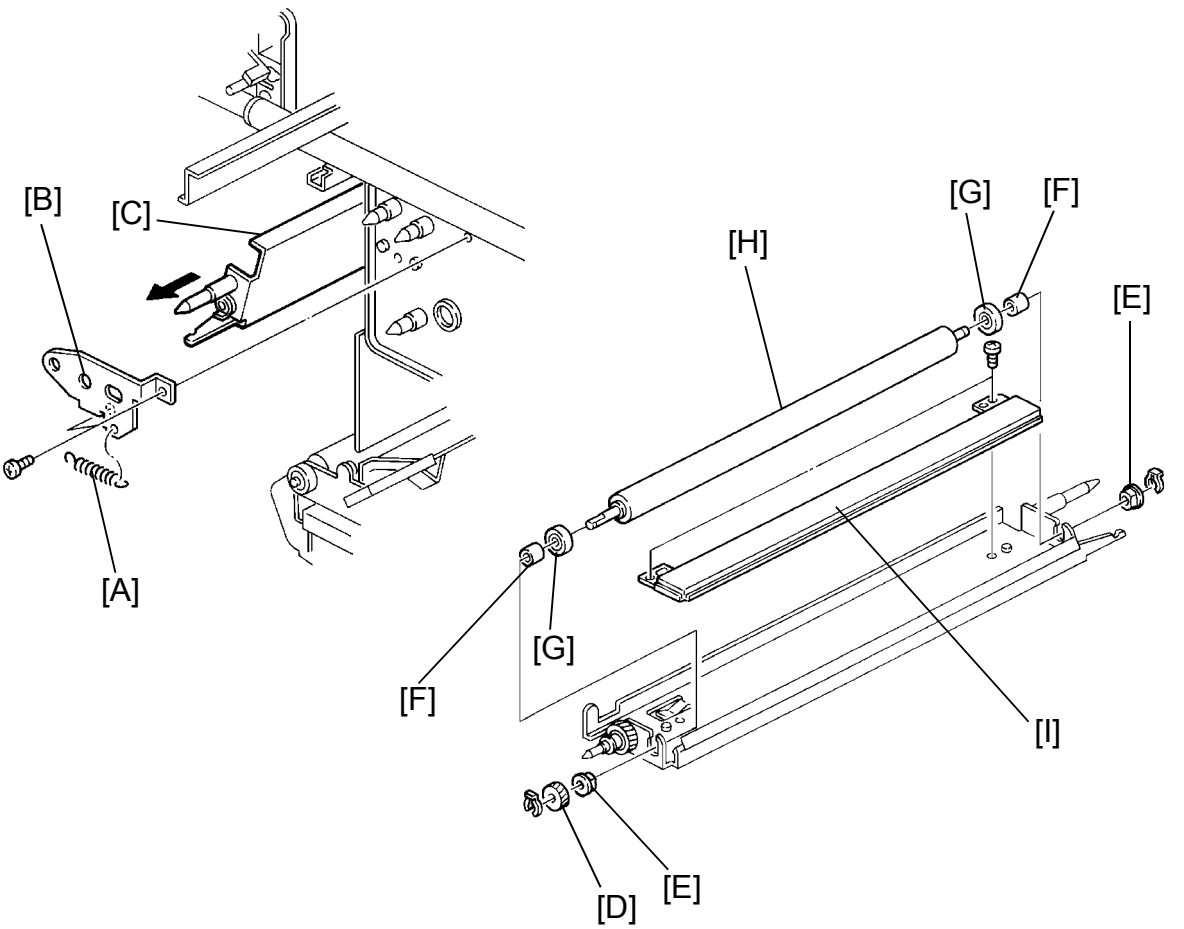


1. Pull out the transfer belt cleaning unit [A] and remove the cleaning blade solenoid bracket. (Refer to the Cleaning Blade Solenoid Replacement section.)
2. Remove the entrance seal front supporting bracket [B] (2 screws and 1 spring).
3. Remove the Cleaning Unit front frame [C] (2 screws).
4. Replace the transfer belt cleaning entrance seal solenoid [D] (2 screws).

NOTE: When reinstalling the unit, make sure that the entrance seal solenoid's plunger and the blade solenoid's plunger are at their in position (no contact with the transfer belt).

12. LUBRICANT UNIT

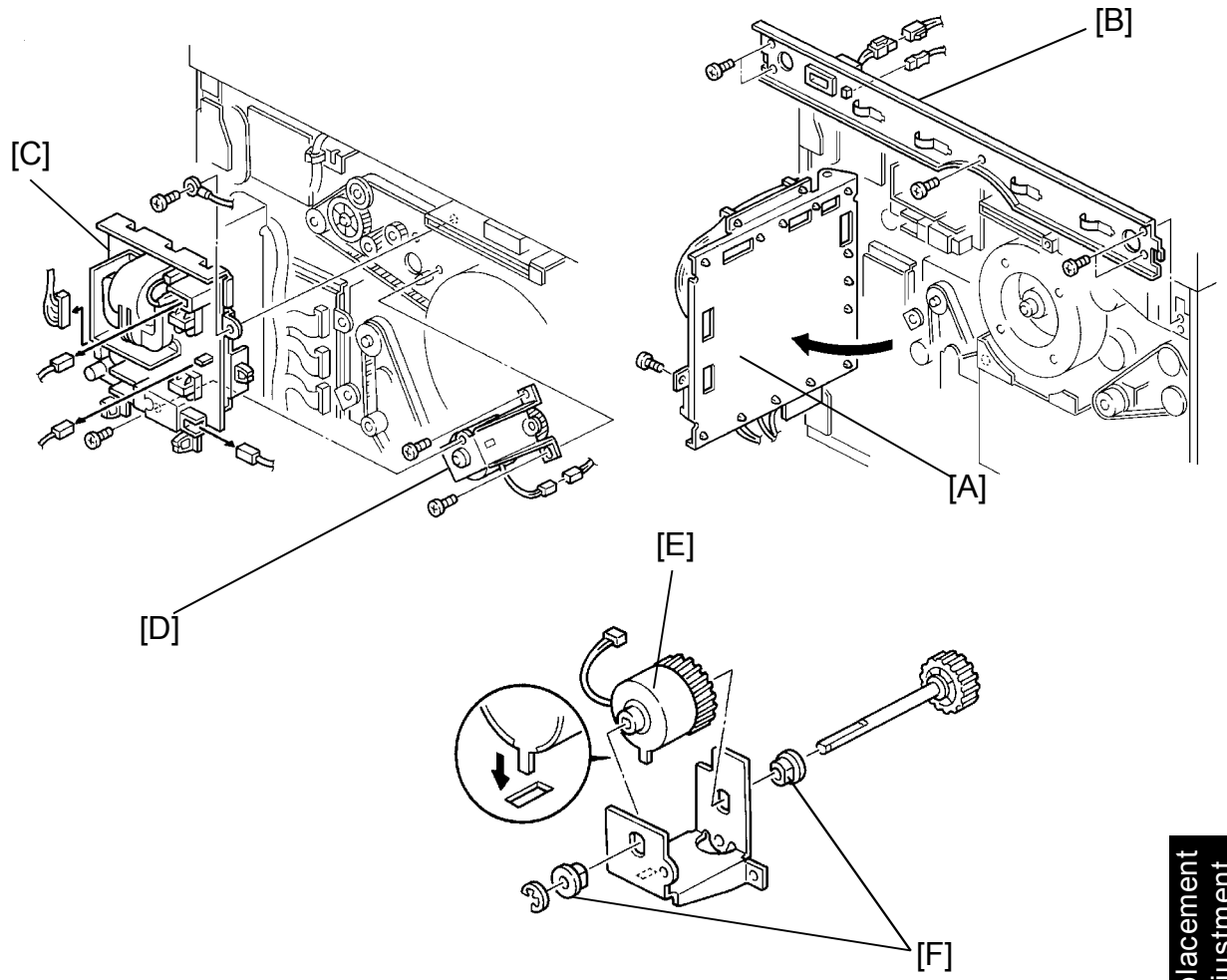
12.1 LUBRICANT BRUSH AND LUBRICANT BAR REPLACEMENT



NOTE:
- When replacing the lubricant brush, replace the lubricant bar as well.
- Do not touch the lubricant brush with oily bare hands.

1. Remove the transfer belt unit. (Refer to Transfer Belt Replacement section.)
2. Remove the lubricant brush spring [A].
3. Remove the lubricant unit stay [B] (2 screws) and pull out the lubricant unit [C].
4. Remove the drive gear [D] (1 snap-ring), bushings [E] (1 snap-ring), spacers [F] and guide rollers [G].
5. Replace the lubricant brush [H] and the lubricant bar [I] (2 screws).

12.2 LUBRICANT BRUSH CLUTCH REPLACEMENT

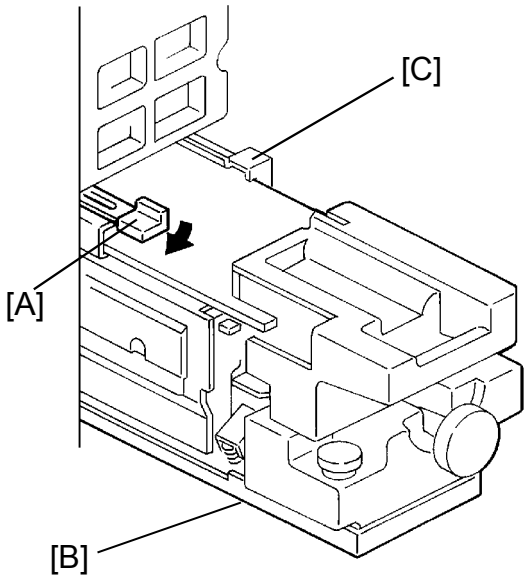


1. Turn off the main switch and unplug the machine.
2. Remove the upper rear cover and swing open the main board [A] (1 screw).
3. Remove the rear supporting frame [B] (5 screws and 2 connectors).
4. Remove the T1/PCC/BR high voltage supply board [C] (2 screws and 4 connectors).
5. Remove the lubricant brush clutch bracket [D] (3 screws and 1 connector).
6. Replace the clutch [E] (1 E-ring).

   NOTE: When installing the new clutch [E], make sure to place the bushings [F] from the outside of the bracket [D] as illustrated.

13. FUSING UNIT

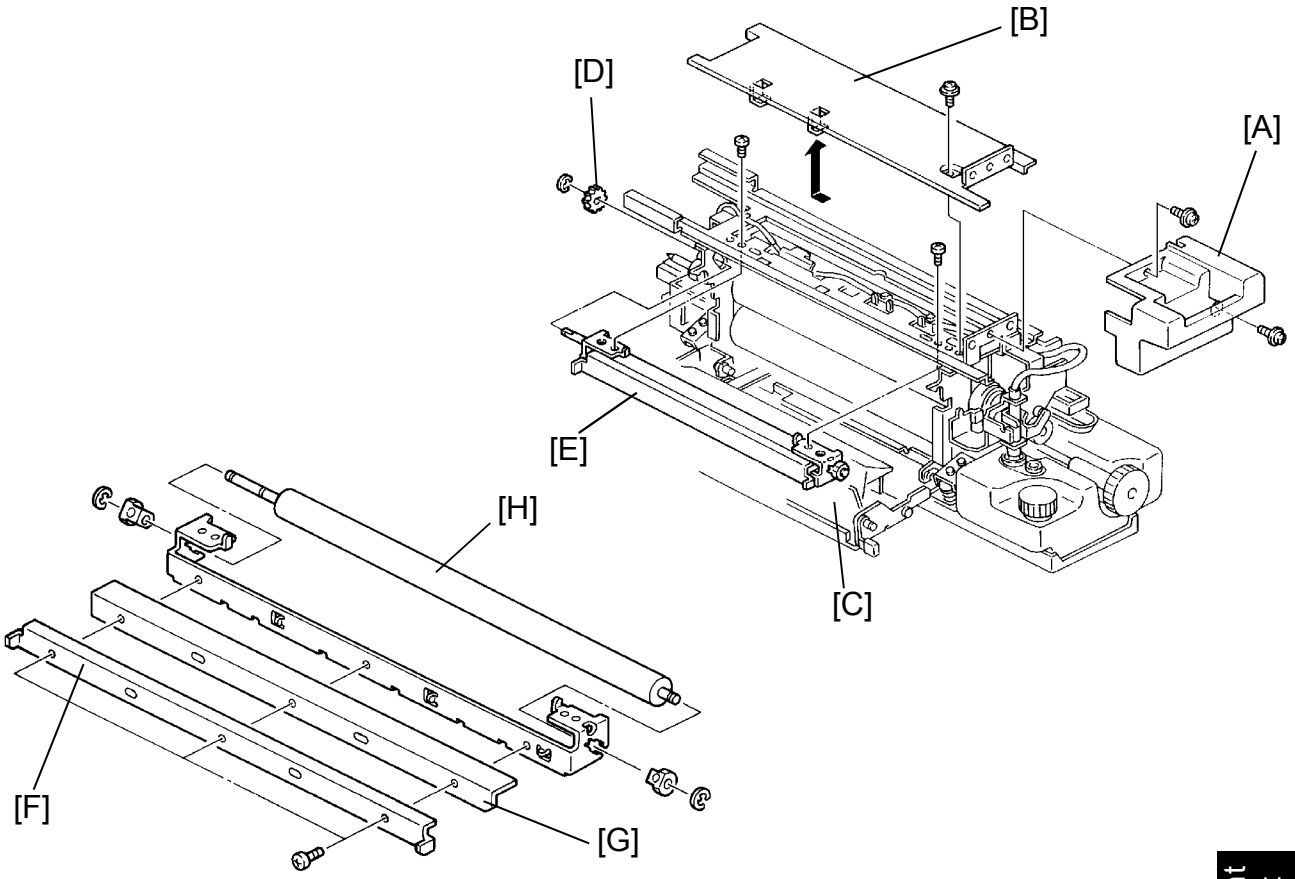
13.1 FUSING UNIT REMOVAL



1. Turn off the main switch and unplug the machine.
2. Open the front door and while pressing the lock lever [A], pull the fusing unit [B] half way out.
3. Remove the lock plate [C] (1 screw).
4. While pressing the lock lever [A], remove the fusing unit all the way out.

CAUTION: The fusing unit is very heavy. Before pulling the fusing unit off the rails, support from underneath with your hand.

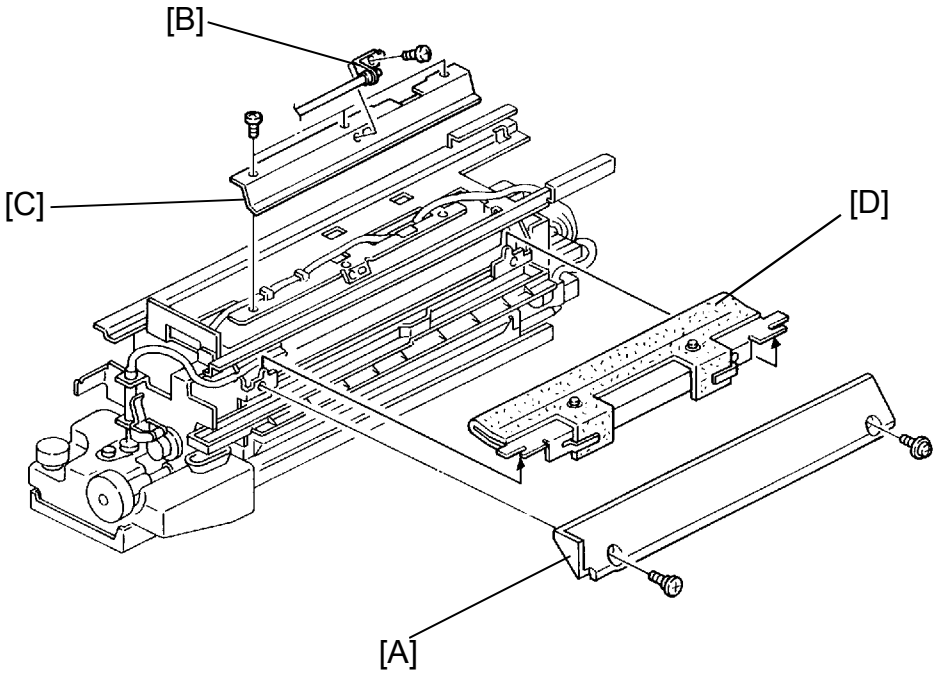
13.2 CLEANING ROLLER AND SCRAPER REPLACEMENT



NOTE: If replacing only the cleaning roller scraper [G], perform only steps 4, 7 and 8.

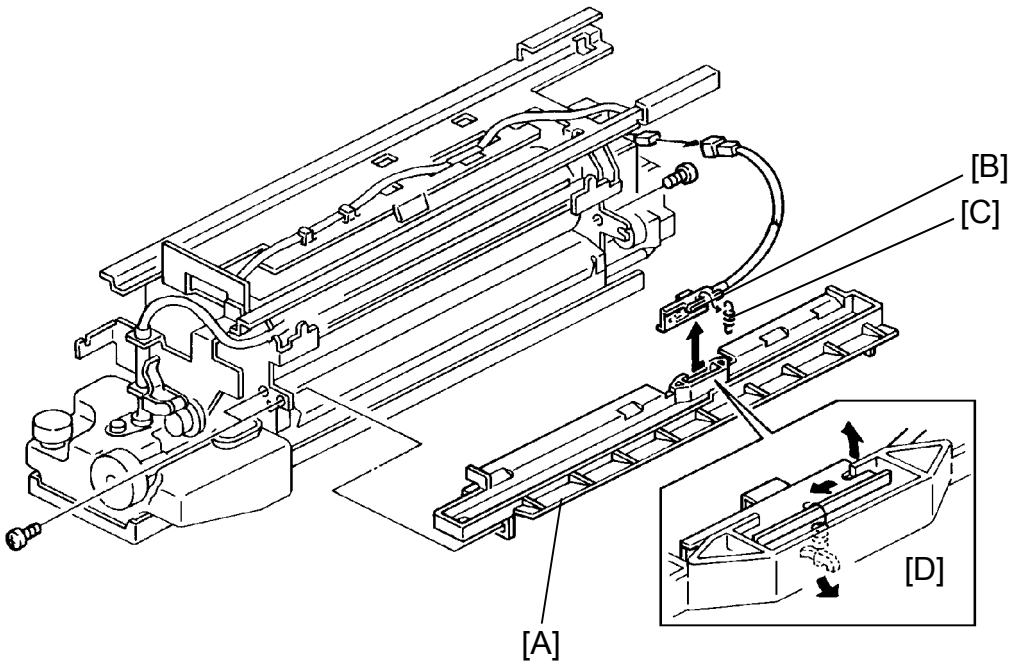
1. Remove the fusing unit from the machine (see Fusing Unit Removal).
2. Remove the handle cover [A] (2 screws).
3. Remove the top cover [B] (1 screw).
4. Press the lock tabs and open the exit cover [C].
5. Remove the cleaning roller gear [D] (1 E-ring).
6. Remove the cleaning unit [E] (2 screws).
7. Remove the cleaning blade bracket [F] (3 screws).
8. Remove the cleaning roller scraper [G].
9. Remove the cleaning roller [H] (2 E-rings).

13.3 OIL SUPPLY PAD REPLACEMENT



1. Remove the fusing unit from the machine (see Fusing Unit Removal).
2. Remove the handle cover (2 screws).
3. Remove the top cover (1 screw).
4. Remove the entrance cover [A] (1 screw and 1 step screw).
5. Remove the oil tube bracket [B] (1 screw).
6. Remove the pressure plate [C] (3 screws).
7. Replace the oil supply pad [D].

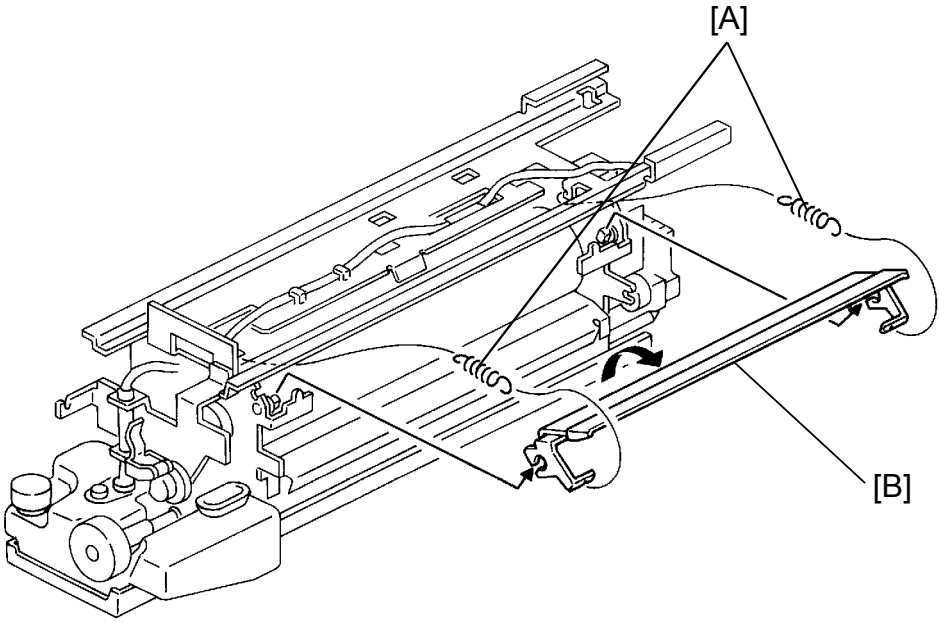
13.4 FUSING THERMISTOR REPLACEMENT



1. Remove the oil supply pad (see Oil Supply Pad Replacement).
2. Remove the oil sump [A] with the fusing thermistor [B] (3 screws and 1 connector).
3. Remove the spring [C] and pull off the fusing thermistor [B].

CAUTION: After installing the thermistor, make sure that it's movable as shown [D].

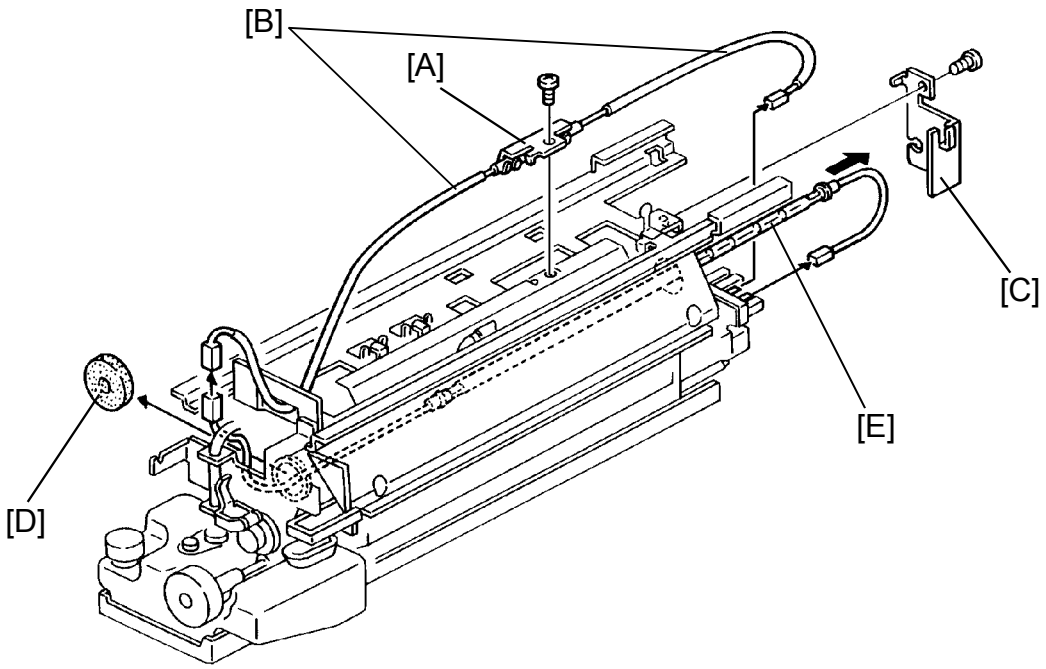
13.5 OIL BLADE REPLACEMENT



1. Remove the oil supply pad (see Oil Supply Pad Replacement).
2. Remove the oil sump (3 screws and 1 connector).
3. Remove the two oil blade springs [A].
4. Flip the oil blade [B] up and remove it.

CAUTION: When installing a new blade, apply silicon oil gently over the entire length of the blade, and turn the fusing knob clockwise to distribute the oil over the surface of the roller. This will prevent the blade from flipping.

13.6 FUSING LAMP AND FUSING THERMOFUSE REPLACEMENT

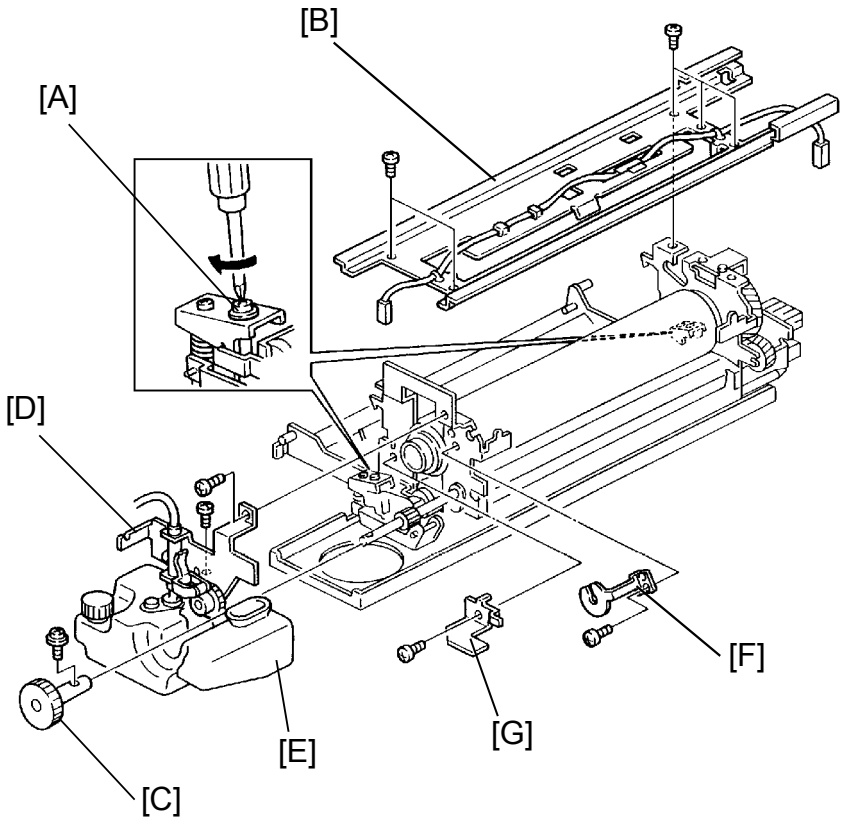


NOTE: If replacing only the fusing lamp, skip steps 4 and 5.

1. Remove the fusing unit from the machine (see Fusing Unit Removal).
2. Remove the handle cover (2 screws).
3. Remove the top cover (1 screw).
4. Remove the fusing thermofuse [A] and harness [B] (1 screw and 2 connectors).
5. Remove the bracket from the thermofuse.
6. Remove the rear fusing lamp bracket [C] (1 screw, 1 connector).
7. Remove the pad [D] from the front end.
8. Pull the fusing lamp [E] out from the rear (1 connector).

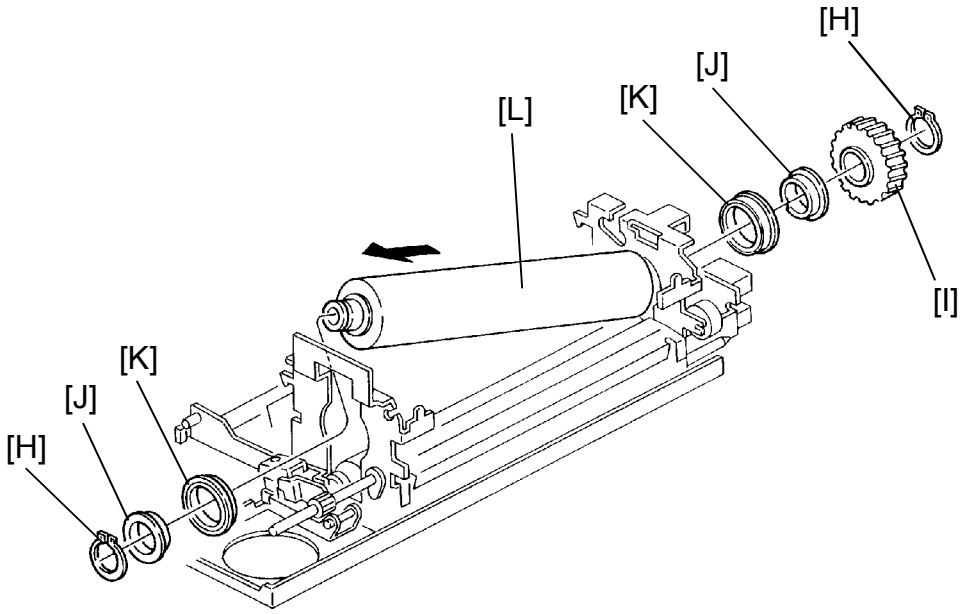
NOTE: When reinstalling the fusing lamp, make sure that both ends are properly fixed in the brackets and the pad [D] is placed in between the front fusing lamp bracket and the ball bearing.

13.7 HOT ROLLER REPLACEMENT



1. Remove the oil blade (see Hot Roller Blade Replacement).
2. Press the two lock tabs and open the fusing exit cover.
3. Screw the pressure release screws [A] all the way in (one screw on each side).

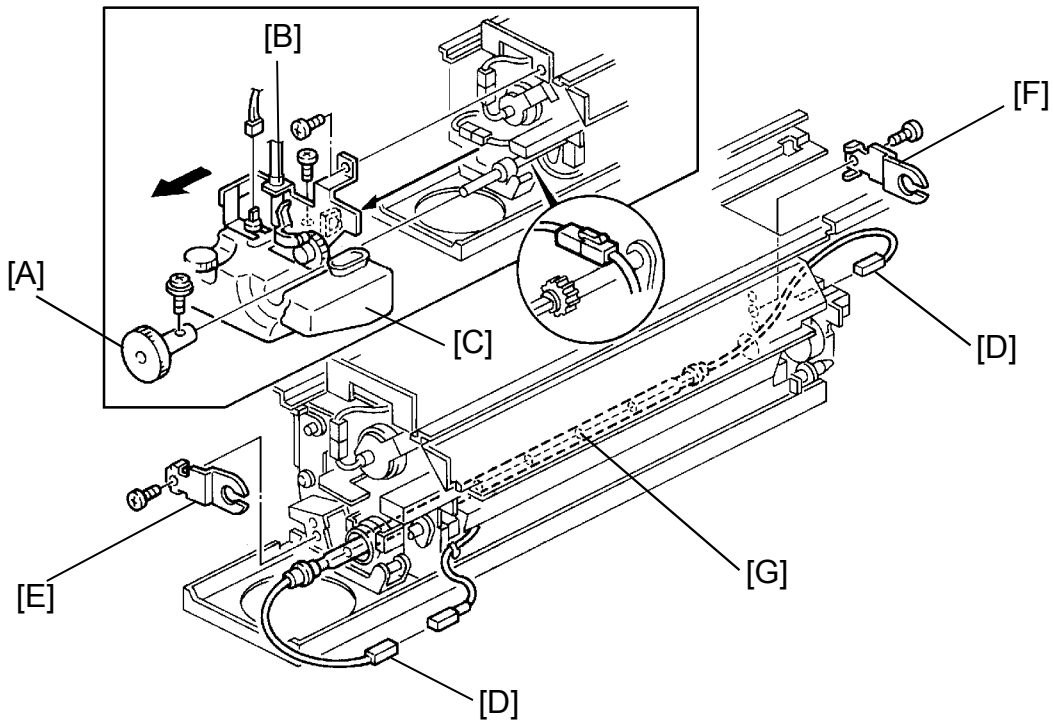
   NOTE: Do not touch the screws for the springs. These are adjusted at the factory to maintain the proper nip band width.
4. Remove the upper frame [B] (5 screws and 4 connectors).
5. Remove the fusing unit knob [C] (1 screw).
6. Remove the oil pump [D] (2 screws and 1 clamp).
7. Remove the oil tank [E].
8. Remove the front fusing lamp bracket [F] (1 screw) and the hot roller brackets [G] (1 screw each).



9. Remove the fusing lamp (see Fusing Lamp and Upper Thermofuse Replacement).
10. Remove the front and rear C-rings [H].
11. Remove the hot roller gear [I], hear isolating bushings [J] and ball bearings [K] (1 screw).
12. Remove the hot roller [L].

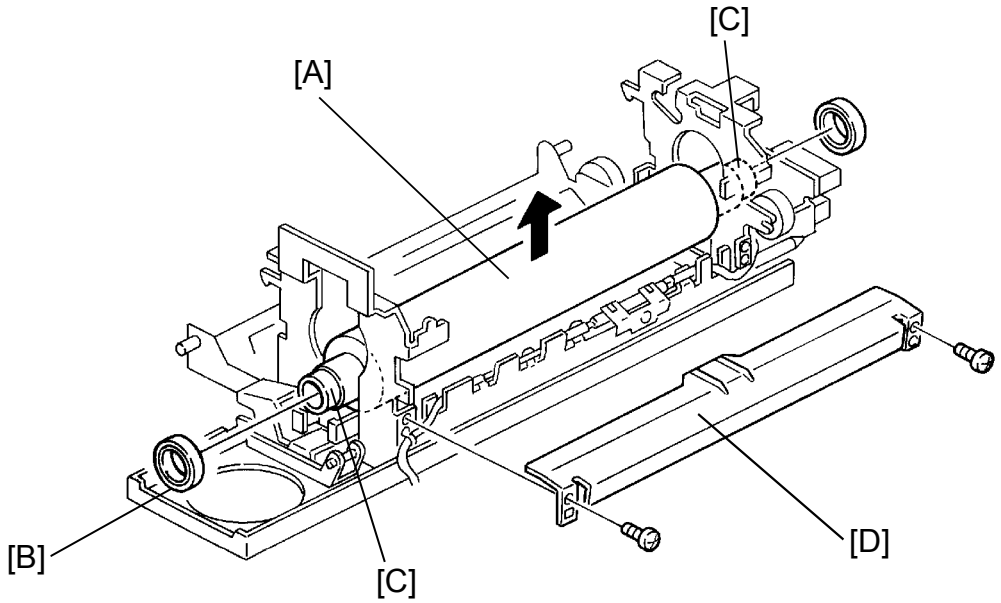
NOTE:
- When replacing the hot roller at a PM cycle , lubricate the inner and out surface of the heat isolating bushings [J] with Barrierta L55/2.
- Clean the ball bearings [K] with a dry cloth.
- There should be some play at the rear of the hot roller gear [I].

13.8 PRESSURE ROLLER LAMP REPLACEMENT



1. Remove the fusing unit from the machine. (See Fusing Unit Removal.)
2. Remove the handle cover (2 screws).
3. Remove the top cover (1 screw).
4. Remove the fusing unit knob[A] (1 screw).
5. Remove the oil pump assembly [B] (2 screws and 1 clamp) with the oil tank [C] (1 connector).
6. Uncouple the connectors [D] on each side of the lamp.
7. Remove the front lamp bracket [E] (1 screw).
8. Remove the rear lamp bracket [F] (1 screw).
9. Slide out the pressure roller lamp [G] from the front.

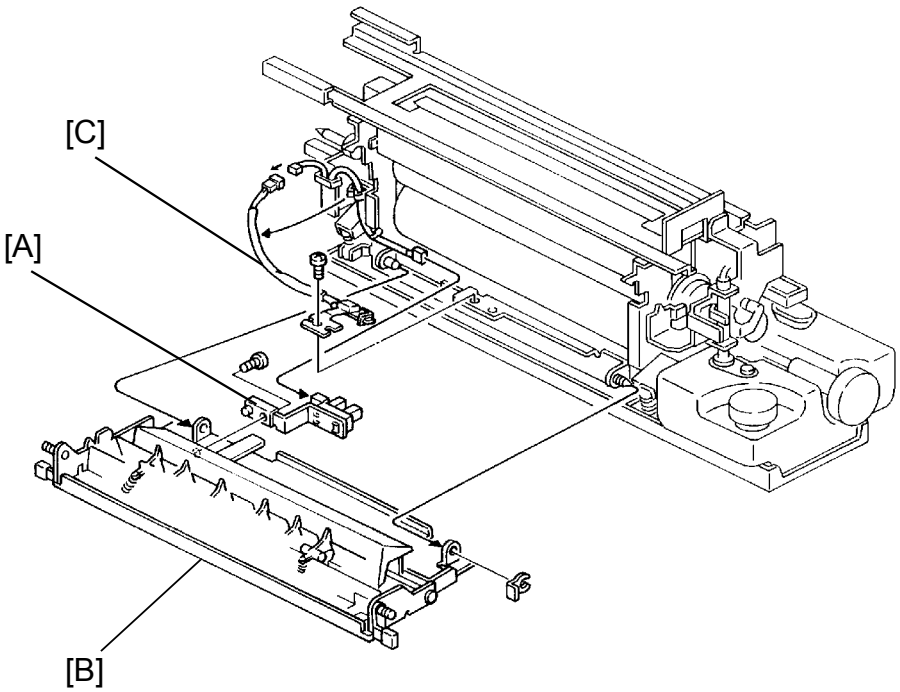
13.9 PRESSURE ROLLER REPLACEMENT



NOTE: When replacing the pressure roller [A] and its ball bearings [B], lubricate the roller shaft [C] and inner surface of the ball bearings with Barrierta L55/2.

1. Remove the hot roller (see Hot Roller Replacement).
2. Remove the pressure roller lamp (see Pressure Roller Lamp Removal).
3. Remove the fusing unit entrance guide plate [D] (2 screws).
4. Lift the pressure roller [A] from the front side and pull off the front bearing [B].
5. Remove the pressure roller.

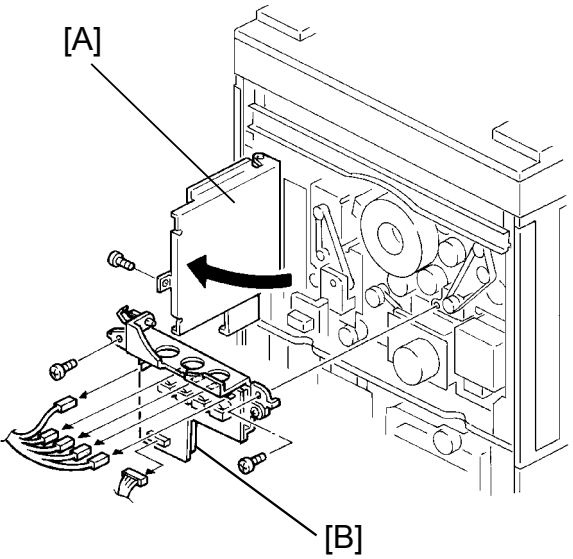
13.10 PRESSURE ROLLER THERMISTOR REPLACEMENT

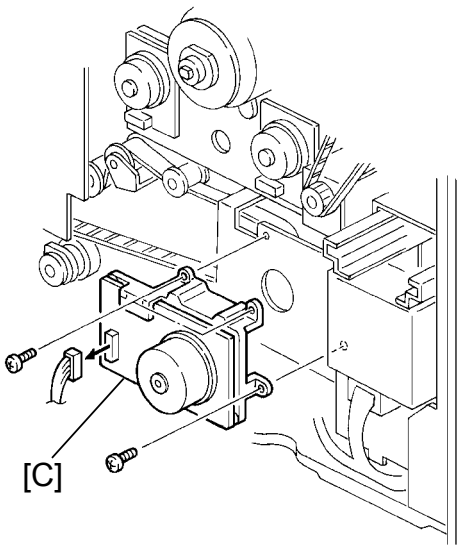


1. Remove the fusing unit from the machine (see Fusing Unit Removal).
2. Press the two lock tabs and open the fusing exit cover.
3. Disconnect the exit sensor connector [A] and free the harness from the clamps.
4. Remove the exit cover [B] (1 snap ring).
5. Remove the pressure roller thermistor [C] (1 screw and 1 connector).

CAUTION: When reinstalling the thermistor make sure the thermistor is in contact with the pressure roller.

13.11 TRANSPORT MOTOR REPLACEMENT

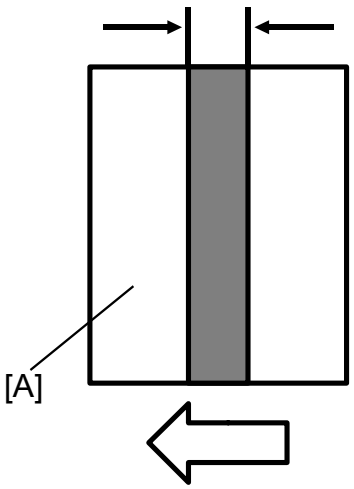




1. Turn off the main switch and unplug the machine.
2. Remove the upper rear cover and swing open the main board [A] (1 screw).
3. Remove the high voltage supply board-B [B] (2 screws).
4. Remove the transport motor assembly [C] (3 screws and 1 connector).
5. Remove the gear (1 Allen screw) and replace the motor.

13.12 FUSING PRESSURE (NIP BAND WIDTH) CONFIRMATION

NOTE: Normally this adjustment is not needed in the field. (The standard factory settings is shown on the table below.)
Perform the following procedures only when the problem is thought to be caused by the faulty nip band width.



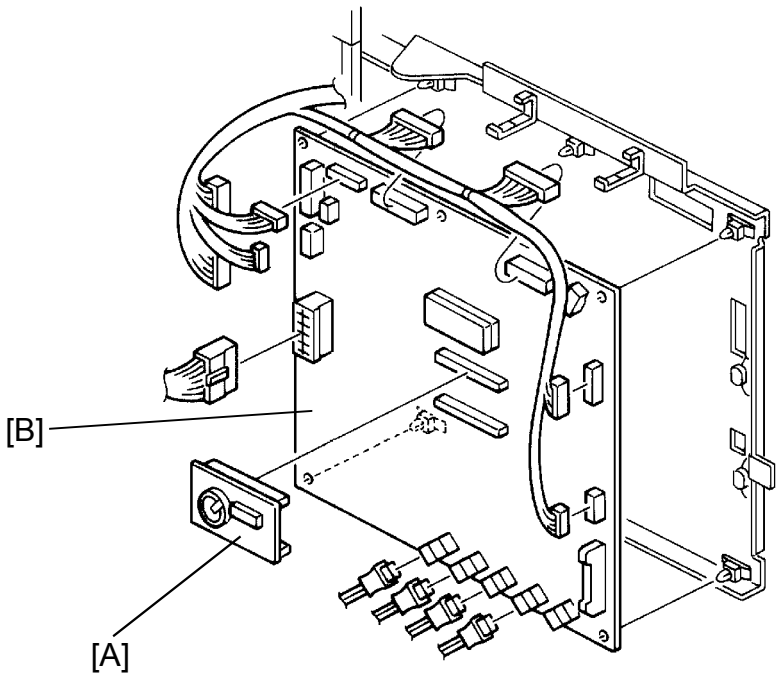
LOCATION	STANDARD
Center	10.0 mm (Confirmation reference)
Both Edge	10.5 ± 0.5 mm

1. After warming up, turn off the main switch and pull out the fusing unit.
2. Pass an OHP sheet sideways [A] through the rollers to about the center position.
3. Wait 30 seconds, then remove the OHP sheet.
4. Measure the center area and both edges of the nip width.
5. If out of standard, adjust the pressure by using the spring screws located at both edges of the fusing unit. (Turning the screws clockwise will increase the nip band width.)

   Confirm that the nip band width is within specification.

14. OTHERS

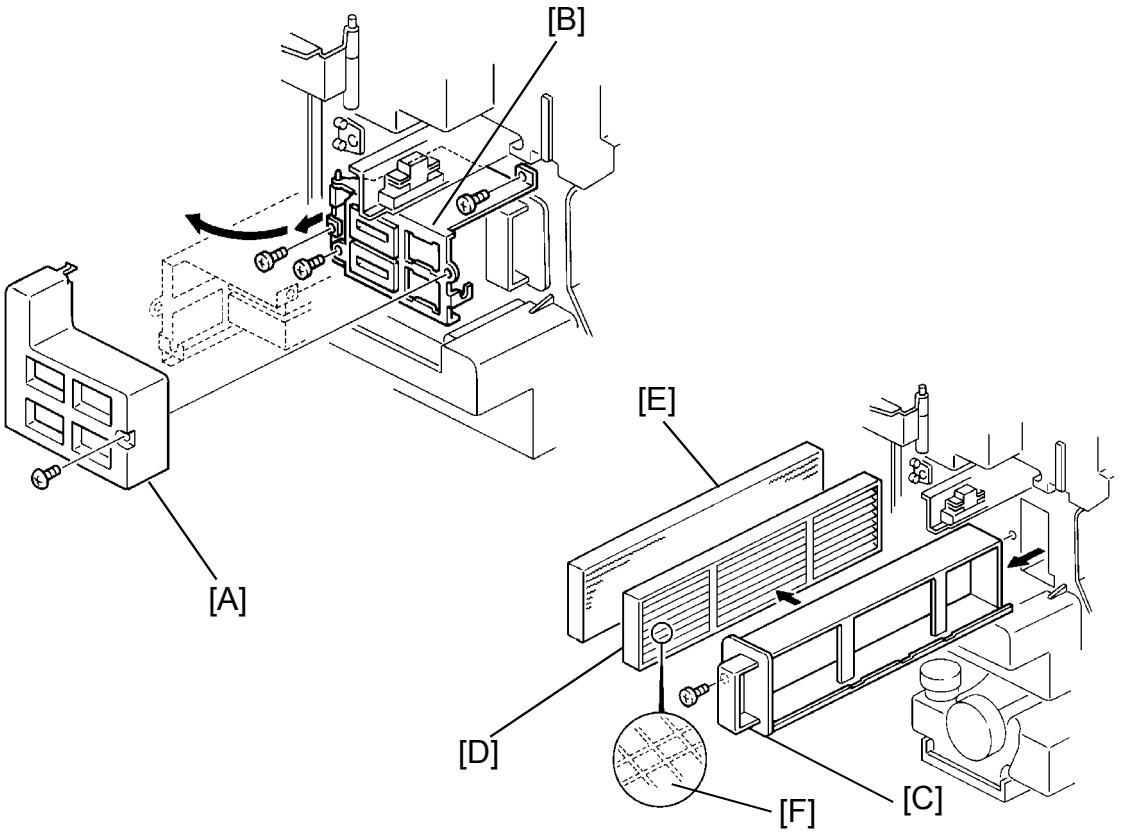
14.1 MAIN CONTROL BOARD REPLACEMENT



CAUTION: The RAM board on the main control board has a lithium battery which can explode if replaced incorrectly. Replace the battery only with an identical one. The manufacturer recommends replacing the entire RAM board. Do not recharge or burn this battery. Used batteries must be handled in accordance with local regulations.

1. Turn off the main switch and unplug the machine.
2. Remove the upper rear cover (4 screws).
3. Remove the RAM board [A].
4. Disconnect all the connectors from the main control board [B].
5. Replace the main control board [B] (5 locking supports).
6. Install the RAM board [A] on the new main control board.
7. Reinstall the upper rear cover and turn on the main switch.
8. Check the machine operation and copy quality.

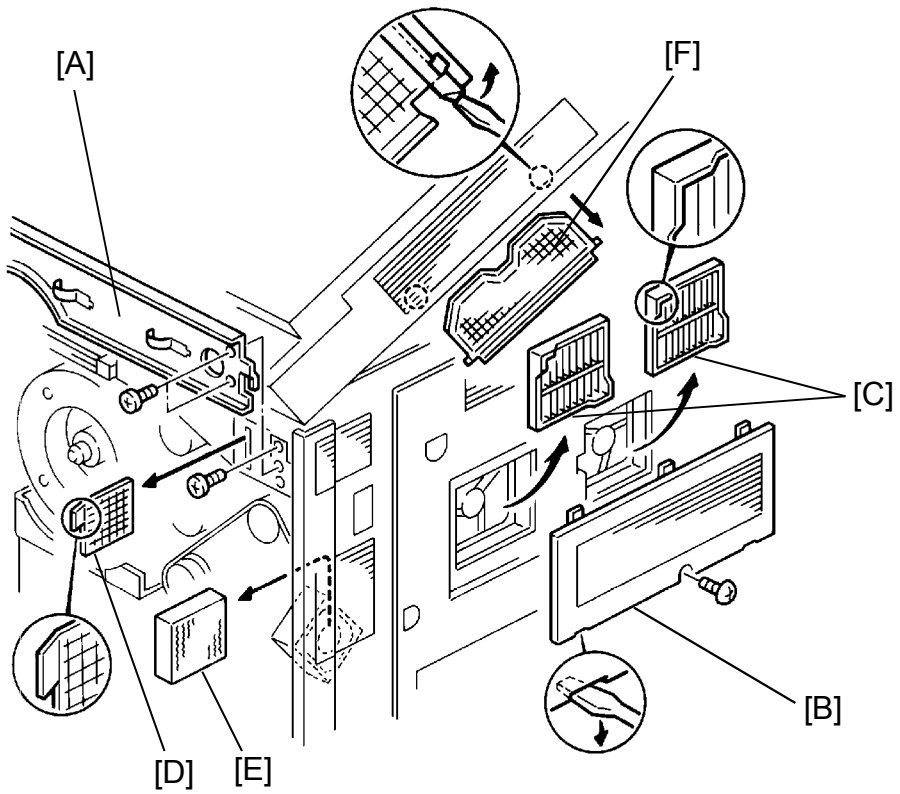
14.2 DEVELOPMENT FILTER AND DEVELOPMENT OZONE FILTER REPLACEMENT



1. Turn off the main switch and unplug the machine.
2. Open the front doors and remove the toner tank (2 screws).
3. Remove the total counter cover [A] (1 screw).
4. Pull and swing out the total counter bracket [B] as shown (3 screws).
5. Slide out the filter holder [C] (1 screw).
6. Remove the filters [D, E] and clean the filter holder [C].
7. Install the new development filter [D] and development ozone filter [E].

   NOTE: Install the new development filter [D] with the net facing towards the ozone filter [E] as shown [F].

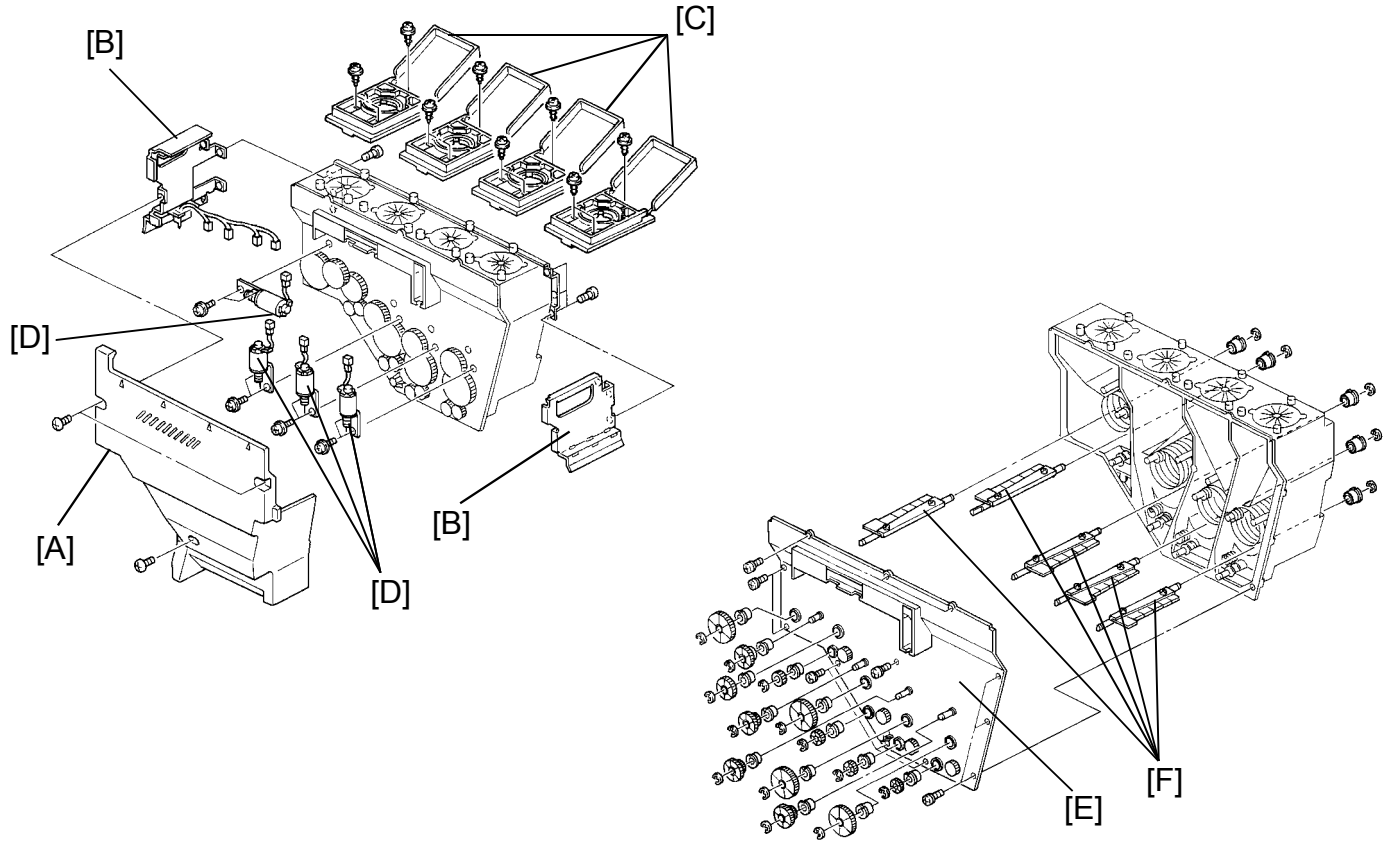
14.3 FILTER REPLACEMENT (DEVELOPMENT EXHAUST, CHARGE INLET FAN, FUSING EXHAUST OZONE, OPTICS COOLING FAN AND INNER COOLING FAN)



1. Lift up the scanner unit. (Refer to the Optical Housing unit Replacement section step 1 to 7.)
2. Remove the rear supporting frame [A] (5 screws and 2 connectors).
3. Remove the exhaust filter cover [B] (1 screw).
4. Replace the development exhaust filters [C], charge inlet fan filter [D], fusing exhaust ozone filter [E], and the optics cooling fan filter [F] as shown.

NOTE: The inner cooling fan filter is located under the lower left inner cover. For replacement, refer to the Inner Cover Removal section.

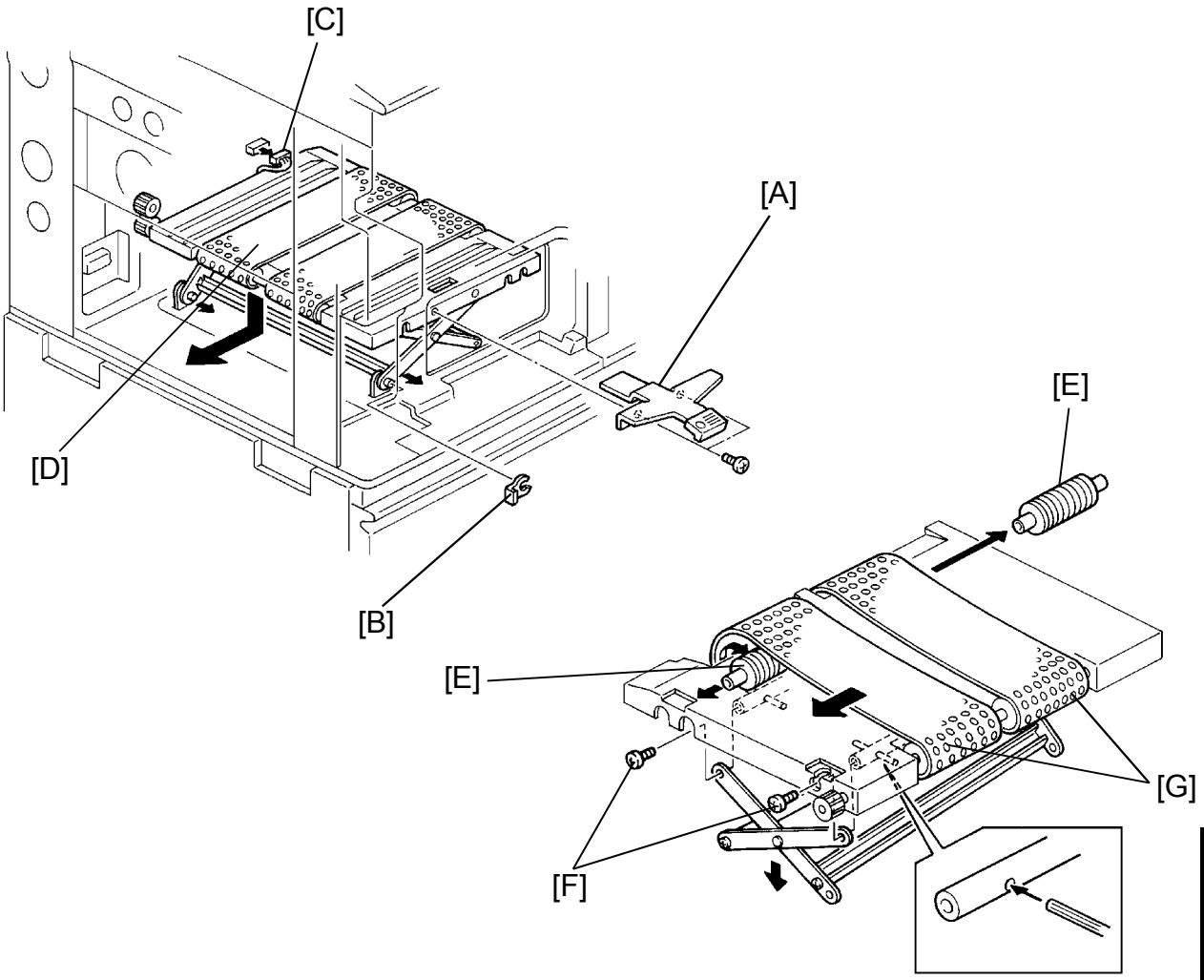
14.4 TONER TANK AGITATOR REPLACEMENT



This procedure is very messy. Always work on newspapers or anything large enough to catch all the toner that will spill out. Take care to keep the customers site clean.

1. Open the front doors and remove the toner tank unit (2 screws).
2. Remove the toner tank outer cover [A] (3 screws).
3. Remove both handle brackets [B] (4 screws each).
4. Remove all the toner tank covers [C] (3 screws each).
5. Dispose all the toner in the toner tank.
6. Remove all the toner supply motor [D] (2 screws each).
7. Remove all the gears on the toner tank front cover [E] as shown.
8. Remove the toner tank front cover [E].
9. Replace the agitators [F] (1 E-ring).

14.5 PAPER TRANSPORT BELT REPLACEMENT

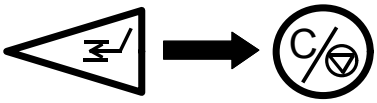


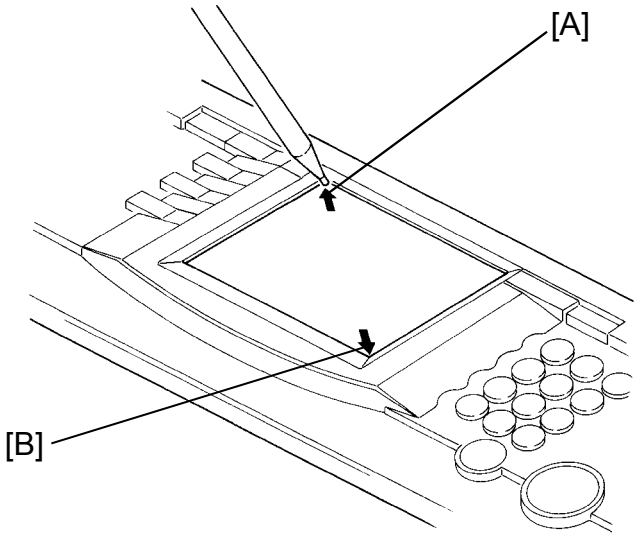
1. Remove the upper left cover. (Refer the Exterior section.)
2. Remove the fusing unit. (Refer the Fusing Unit section.)
3. Remove the paper transport belt lever [A] (2 screws).
4. Remove the snap ring [B] and connector [C].
5. Slide out the paper transport belt unit [D] as shown.
6. Remove the 2 transport belt rollers [E] (transfer belt side) as shown.
7. Unscrew the 2 securing screws [F] (rear side).
8. Replace the transport belts [G].
9. Reinstall the unit.

14.6 POINT ACCURACY ADJUSTMENT

When the touch panel sensing mechanism is not working properly, adjust it as follows:

1. Press the Interrupt key.
2. Press the Clear/Stop key for more than 3 seconds.





3. The graphic sensing adjustment screen will appear. Touch the upper left corner [A] then the lower right corner [B] of the panel using a pointed tool.
4. Touch a few spots on the LCD touch panel, and confirm that the marker on the screen appears exactly at the same location as the pointed tip. If it is not, press the Clear/Stop key and repeat this procedure.
5. Press the Enter key to save the setting.
6. Press the Interrupt key to cancel the interrupt mode.

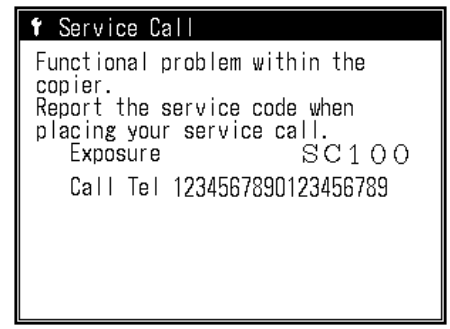
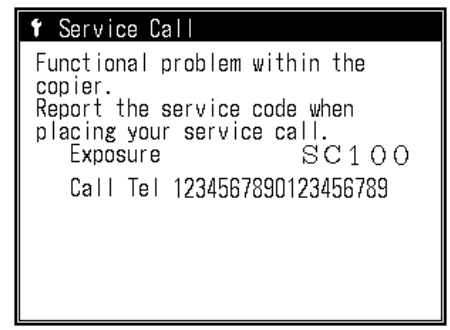
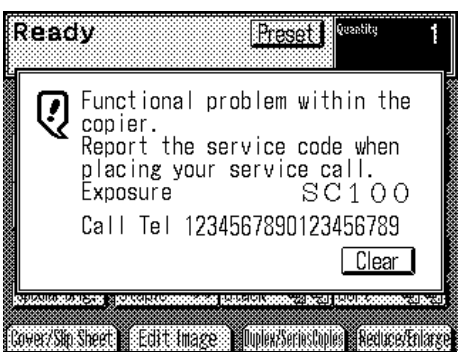
SECTION 6

TROUBLESHOOTING

1. SERVICE CALL CONDITIONS

1.1 SUMMARY

There are 4 levels of service call conditions.

Level	Definition	Display
A	The SC can only be reset by service representative (see note in the next page) to prevent the machine from being damaged. The copier cannot be operated at all.	SC display will not be canceled.  Service Call Functional problem within the copier. Report the service code when placing your service call. Exposure SC100 Call Tel 1234567890123456789
B	The SC can be reset by turning main switch off and on if the SC is caused by misdetection.	 Service Call Functional problem within the copier. Report the service code when placing your service call. Exposure SC100 Call Tel 1234567890123456789
C	The copier can be operated as usual except for the unit related to the service call.	If the related function is selected, this display appears.  Ready Preset Quantity 1 Functional problem within the copier. Report the service code when placing your service call. Exposure SC100 Call Tel 1234567890123456789 Clear Cover/Slip Sheet Edit Image Duplex/Series Copies Reduce/Enlarge
D	Only the SC counter is incremented. The copier can be operated as usual.	SC will not be displayed.

NOTE: 1) If the problem is related to electrical circuit boards, first disconnect then reconnect the connectors before replacing the PCBs.

2) If the problem is related to motor lock, first check the mechanical load before replacing motors or sensors.

3) To reset the SC of "Level: A", enter SP mode then turn off and on the main switch.

4) When an SC condition of "Level A or B" occurs while in SP mode, the display does not indicate the SC number. You can recognize the SC condition because in this condition no key input is possible. If this occurs, confirm the SC number by turning off and on the main switch and make test copies.

1.2 SCANNING

SC107: Lamp regulator malfunction

- Definition - [B]

Detects lamp regulator malfunctions by monitoring the signal for both the exposure lamp on and off conditions.

<Possible causes>

- Lamp regulator defective
- Exposure lamp open
- Optics thermoswitch open
- Scanner control board defective or poor connection

SC120: Scanner HP sensor abnormal - Stays off

- Definition - [B]

The scanner home position sensor does not detect the on condition during scanner initialization.

<Possible causes>

- Scanner HP sensor defective
- Scanner motor defective or poor connection
- Scanner drive board defective or poor connection
- Scanner control board defective or poor connection
- Loose Allen screw on scanner drive pulleys
- DC power supply board defective (FU803)

SC121: Scanner HP sensor abnormal - Stays on

- Definition - [B]

The scanner home position sensor does not detect the off condition during scanner initialization.

<Possible causes>

- Scanner HP sensor defective
- Scanner motor defective or poor connection
- Scanner drive board defective or poor connection
- Scanner control board defective or poor connection
- Loose Allen screw on scanner drive pulleys
- DC power supply board defective (FU803)

SC130: Scanner start abnormal

- Definition - [B]

Scanner start signal is detected before the scanner returns to the home position.

<Possible causes>

- Scanner control board defective

SC170: Scanner DA1 abnormal

- Definition - [B]

When performing the AGC, DA1 is not set in the proper range.

<Possible causes>

- Poor connection between CCD board and scanner control board
- Scanner control board defective
- CCD board defective

SC171: Scanner DA2 abnormal

- Definition - [B]

When performing the AGC, DA2 is not set in the proper range.

<Possible causes>

- Poor connection between CCD board scanner control board
- Scanner control board defective
- CCD board defective

SC172: Scanner DA3 abnormal

- Definition - [B]

When performing the AGC, DA3 is not set in the proper range.

<Possible causes>

- Dirty white plate, reflectors,mirrors, or lens
- White plate on the exposure glass is not properly positioned
- Exposure lamp deteriorated
- Scanner or mirrors are not properly positioned
- Scanner control board defective
- CCD board defective

SC173: Lamp regulator adjustment error

- Definition - [B]

When performing the AGC with the lamp voltage at 72 V, the CCD output does not exceed 1 V.

<Possible causes>

[If exposure lamp lights during AGC]

- White plate on the exposure glass is not properly positioned
- Dirty white plate, reflectors, mirrors, or lens
- Poor connection between lamp regulator and scanner drive board (CN105) or between scanner control board and scanner drive board (CN101)
- Exposure lamp deteriorated
- CCD board defective
- Scanner or mirrors are not properly positioned
- Lamp regulator defective or poor connection (CN3)
- Scanner control board defective or poor connection (CN106)

[If exposure lamp does not light during AGC]

- Poor connection between lamp regulator and scanner drive board (CN105) or between scanner control board and scanner drive board (CN101)
- No AC input to lamp regulator (CN1) → AC drive board or main power relay defective
- Lamp regulator defective or poor connection (CN3)
- Scanner control board defective or poor connection (CN106)

SC174: Scanner DA2* abnormal

- Definition - [B]

When performing the AGC, DA2* is not set in the proper range.

<Possible causes>

- Poor connection between CCD board and scanner control board
- Scanner control board defective
- CCD board defective

SC191: Bar code scanning error

- Definition - [B]

The bar code for the machine identification number cannot be detected when the AGC is performed after the main switch is turned on.

<Possible causes>

- The bar code label is dirty.
- Scanner mirrors are not in position

SC192: Bar code number is different

- Definition - [B]

Bar code number is not identical to the machine identification number stored in memory.

<Possible causes>

- Wrong machine identification number in memory
- Machine identification number is not entered in the new (replaced) RAM board
- RAM board defective
- Main control board defective

1.3 PRINTING

SC302: See AROUND THE DRUM

SC320: Polygon motor lock

- Definition - [B]

Polygon motor lock signal is detected for more than 3 seconds.

<Possible causes>

- Polygon motor defective
- Polygon motor drive board defective
- Scanner control board defective

SC321: Transfer belt start signal error

- Definition - [B]

Transfer belt start signal is not detected within 500 msec. relative to the programmed timing.

<Possible causes>

- IPU board defective
- DIP SW300-1 on the IPU board is not ON

SC322: Laser synchronizing signal error

- Definition - [B]

The intervals between laser synchronizing signals become over 1.2 times the normal one.

<Possible causes>

- Laser synchronizing detector board defective
- Scanner control board defective
- Laser synchronizing detector board is not properly positioned
- LD unit defective

SC323: LD drive current over

- Definition - [B]

The LD drive board applies more than 100 mA to the LD for over 2.3 msec.

<Possible causes>

- LD unit defective

1.4 DEVELOPMENT

SC341: Bk-development motor lock

- Definition - [B]

Bk-development motor lock signal is detected for more than 3 seconds.

<Possible causes>

- Bk-development motor defective or poor connection
- Too much load on the Bk-development section
- Interface board 1 defective or poor connection (CN708)
- Main control board defective

SC342: Bk-sleeve motor lock

- Definition - [B]

Bk-sleeve motor lock signal is detected for more than 3 seconds.

<Possible causes>

- Bk-sleeve motor defective or poor connection
- Too much load on the Bk-sleeve roller
- Interface board 1 defective or poor connection (CN708)
- Main control board defective

SC343: Y-sleeve motor lock

- Definition - [B]

Y-sleeve motor lock signal is detected for more than 3 seconds.

<Possible causes>

- Y-sleeve motor defective or poor connection
- Too much load on the Y-sleeve roller
- Interface board 2 defective or poor connection (CN806)
- Main control board defective

SC344: M-sleeve motor lock

- Definition - [B]

M-sleeve motor lock signal is detected for more than 3 seconds.

<Possible causes>

- M-sleeve motor defective or poor connection
- Too much load on the M-sleeve roller
- Interface board 2 defective or poor connection (CN806)
- Main control board defective

SC345: C-sleeve motor lock

- Definition - [B]

C-sleeve motor lock signal is detected for more than 3 seconds.

<Possible causes>

- C-sleeve motor defective or poor connection
- Too much load on the C-sleeve roller
- Interface board 2 defective or poor connection (CN806)
- Main control board defective

SC346: Color-development motor lock

- Definition - [B]

Color-development motor lock signal is detected for more than 3 seconds.

<Possible causes>

- Color-development motor defective or poor connection
- Too much load on one of the C/M/Y-development sections
- Interface board 1 defective or poor connection (CN708)
- Main control board defective
- DC power supply board defective (FU805)

SC350: Bk-TD sensor initial setting error

SC351: Y-TD sensor initial setting error

SC352: M-TD sensor initial setting error

SC353: C-TD sensor initial setting error

- Definition - [B]

TD sensor output (Vt) does not reach a value between 2.4 and 2.6 V when performing the toner density initial setting.

<Possible causes>

- TD sensor defective
- Main control board defective
- Developer not distributed evenly

SC354: Bk-TD sensor gain adjustment error

SC355: Y-TD sensor gain adjustment error

SC356: M-TD sensor gain adjustment error

SC357: C-TD sensor gain adjustment error

- Definition - [B]

When adjusting TD sensor gain during the toner density initial setting, Vcnt (output voltage) does not reach a value between 7 and 11 V.

<Possible causes>

- Main control board defective

SC360: Development bias leak

- Definition - [B]

Development bias leak signal is detected for more than 3 seconds.

<Possible causes>

- Sleeve roller receptacle damaged
- High voltage supply board - B defective

SC370: Bk-TD sensor upper detection abnormal

SC371: Y-TD sensor upper detection abnormal

SC372: M-TD sensor upper detection abnormal

SC373: C-TD sensor upper detection abnormal

- Definition - [B]

TD sensor output (Vt) exceeds 4.5 V during copy cycles.

<Possible causes>

- TD sensor defective
- Main control board defective
- Too much toner in the development unit (accident)

SC374: Bk-TD sensor lower detection abnormal

SC375: Y-TD sensor lower detection abnormal

SC376: M-TD sensor lower detection abnormal

SC377: C-TD sensor lower detection abnormal

- Definition - [B]

TD sensor output (Vt) becomes lower than 0.5 V during copy cycles.

<Possible causes>

- TD sensor defective
- Main control board defective
- Toner supply system defective

1.5 AROUND THE DRUM

SC302: Charge current leak

- Definition - [B]

Charge current leak signal is detected for more than 3 seconds.

<Possible causes>

- Charge corona end block damaged
- Charge corona receptacle damaged
- High voltage supply board - C/G defective

SC380: Drum potential sensor calibration error

- Definition - [D]

When performing the process control self-check, the drum potential sensor is not calibrated properly. The previous data is used in this case. If there is no previous data, the default is used.

<Possible causes>

- Drum potential sensor defective
- Interface board 1 defective
- Main control board defective
- High voltage supply board - B defective

SC381: Charge potential abnormal

- Definition - [D]

When performing the process control self-check, the charge potential of the drum is not in the proper range.

<Possible causes>

- High voltage supply board- C/G defective
- Main control board defective

SC382: V_D adjustment error

- Definition - [D]

When performing the process control self-check, V_D does not come within 5 V of the target after 30 trials. The previous data for V_G, V_B, I_{LD} is used in this case. If there is no previous data, the default is used.

<Possible causes>

- High voltage supply board - C/G defective
- Main control board defective

SC383: V_L adjustment error

- Definition - [D]

When performing the process control self-check, V_L does not come within 5 V of the target after 30 trials. The previous data for V_G, V_B, I_{LD} is used in this case. If there is no previous data, the default is used.

<Possible causes>

- LD drive board defective
- IPU board defective

SC384: LD exposure abnormal

- Definition - [D]

When performing the process control self-check, the potential of the 10 gradation patterns does not come within the target range.

<Possible causes>

- LD drive board defective
- IPU board defective

SC390: ID sensor adjustment error

- Definition - [D]

When performing the process control self-check, Vsg adjustment does not result in 4.0 ± 0.2 V.

<Possible causes>

- ID sensor defective
- Main control board defective
- ID sensor too dirty

SC422: PCC leak

- Definition - [B]

PCC leak signal is detected for more than 3 seconds.

<Possible causes>

- PCC end block damaged
- High voltage supply board - T1/PCC/BR defective

SC440: Drum motor lock

- Definition - [B]

Drum motor lock signal is detected for more than 3 seconds.

<Possible causes>

- Too much load on the drum drive mechanism
- Drum motor defective or poor connection
- Interface board 1 defective or poor connection (CN708)
- Main control board defective

1.6 TRANSFER BELT / ROLLER

SC405: Transfer belt position abnormal

- Definition - [B]

The transfer belt is positioned to touch the drum in the following conditions:
Belt and drum cleaning completed after the main switch is turned on
Belt and drum cleaning completed after clearing paper jam
Copy job completed

<Possible causes>

- Transfer belt position sensor defective
- Transfer belt position clutch defective
- Interface board 1 defective
- Main control board defective

SC406: Transfer roller position abnormal

- Definition - [B]

The transfer roller is positioned to touch the transfer belt in the following conditions:
Belt and drum cleaning completed after the main switch is turned on
Belt and drum cleaning completed after clearing paper jam
Copy job completed

<Possible causes>

- Transfer roller position sensor defective
- Transfer roller position clutch defective
- Interface board 2 defective
- Main control board defective

SC411: Paper discharge leak

- Definition - [B]
  Paper discharge leak signal is detected for more than 3 seconds.

<Possible causes>

- Paper discharge plate is touching conductive foreign object.
- High voltage supply board - D defective

SC420: Cleaning motor lock

- Definition - [B]
  Cleaning motor lock signal is detected for more than 3 seconds.

<Possible causes>

- Too much load on the lubricant brush or transfer belt release mechanism.
- Cleaning motor defective or poor connection
- Interface board 1 defective or poor connection (CN710)
- Main control board defective

SC422: See AROUND THE DRUM

SC440: See AROUND THE DRUM

1.7 PAPER FEED

SC500: Transport motor lock

- Definition - [B]

Transport motor lock signal is detected for more than 3 seconds.

<Possible causes>

- Too much load on the transport unit, fusing unit, transfer roller unit, or transfer belt cleaning unit
- Transport motor defective or poor connection
- Interface board 2 defective or poor connection (CN806)
- Main control board defective

SC502: 1st tray lift motor abnormal

SC503: 2nd tray lift motor abnormal

SC504: 3rd tray lift motor abnormal

- Definition - [C]

Lift sensor is not activated within 10 seconds after the lift motor starts turning. SC message for level C is displayed when this condition is detected twice.

<Possible causes>

- Lift sensor defective
- Tray lift motor defective or poor connection
- Paper feed interface board defective or poor connection (CN906)
- Main control board defective

SC510: Paper feed motor abnormal

- Definition - [B]

Paper feed motor lock signal is detected for more than 3 seconds.

<Possible causes>

- Too much load on the paper feed mechanism
- Paper feed motor defective or poor connection
- Paper feed interface board defective or poor connection (CN910)
- Main control board defective

1.8 FUSING

SC541: Fusing thermistor open

- Definition - [A]

The output of the fusing thermistor goes to 5 V, corresponding to 0°C.

<Possible causes>

- Fusing thermistor open
- Fusing unit not set
- Main control board defective

SC542: Fusing warm-up error

- Definition - [A]

Fusing temperature does not reach the ready temperature within 12 minutes after the main switch is turned on.

<Possible causes>

- Fusing thermistor not in position
- Fusing lamp open
- Fusing thermistor defective
- Main control board defective

SC543: Fusing overheat

- Definition - [A]

Fusing temperature of over 200°C is detected 5 times (5 seconds).

<Possible causes>

- Fusing thermistor defective
- AC drive board defective (triac)
- Main control board defective

SC544: Fusing low temperature abnormal

- Definition - [A]

Fusing temperature of below 90°C is detected 6 times (6 seconds) after warm-up is completed.

<Possible causes>

- Fusing thermistor defective
- AC drive board defective
- Main control board defective
- Fusing thermistor not in position
- Fusing lamp open

SC545: Fusing ready temperature abnormal

- Definition - [A]

Fusing temperature goes below the ready temperature (10°C below the control temperature) after warm-up is completed, and it does not reach the ready temperature within 6 minutes.

<Possible causes>

- Fusing thermistor defective
- AC drive board defective
- Main control board defective

SC547: Fusing temperature does not increase

- Definition - [A]

During warm-up, the fusing temperature does not increase when compared to the temperature 1 minute before.

<Possible causes>

- Fusing thermistor defective
- AC drive board defective
- Main control board defective

SC551: Pressure roller thermistor open

- Definition - [A]

The output of the pressure roller thermistor goes to 5 V, corresponding to 0°C.

<Possible causes>

- Pressure roller thermistor open
- Main control board defective
- Fusing unit not set

SC552: Pressure roller warm-up error

- Definition - [A]

Pressure roller temperature does not reach the ready temperature within 12 minutes after the main switch is turned on.

<Possible causes>

- Pressure roller thermistor not in position
- Pressure roller lamp open
- Pressure roller thermistor defective
- Main control board defective

SC553: Pressure roller overheat

- Definition - [A]
  Pressure roller temperature of over 180°C is detected 5 times.

<Possible causes>
- Pressure roller thermistor defective
- AC drive board defective (triac)
- Main control board defective

SC554: Pressure roller low temperature abnormal

- Definition - [A]
  Pressure roller temperature of below 70°C is detected 6 times after warm-up is completed.

<Possible causes>
- Pressure roller thermistor defective
- AC drive board defective
- Main control board defective
- Pressure roller thermistor not in position
- Pressure roller lamp open

SC555: Pressure roller ready temperature abnormal

- Definition - [A]
  Pressure roller temperature goes below the ready temperature (10°C below the control temperature) after warm-up is completed, and does not reach the ready temperature within 6 minutes.

<Possible causes>
- Pressure roller thermistor defective
- AC drive board defective
- Main control board defective

SC557: Pressure roller temperature does not increase

- Definition - [A]
  During warm-up, pressure roller temperature does not increase when compared to the temperature 1 minute before.

<Possible causes>
- Pressure roller thermistor defective
- AC drive board defective
- Main control board defective

SC558: Zero cross signal abnormal

- Definition - [A]

Zero cross signals are not detected within a certain period.

<Possible causes>

- Main control board defective

1.9 COMMUNICATION

SC600: Communication error between main control and operation panel boards

- Definition - [B]

Main CPU cannot communicate with the operation panel CPU properly.

<Possible causes>

- Poor connection between the main control board and operation panel board
- Main board defective
- Operation panel defective

SC601: Communication error between main control and scanner control boards

- Definition - [B]

Main CPU cannot communicate with the scanner control CPU properly.

<Possible causes>

- Poor connection between the main control board and scanner control board (optical fiber cable)
- Optical fiber cable defective
- Main control board defective
- Scanner control board defective
- DC power supply board defective (No dc 5V input to scanner control board)

SC602: Communication error between main control and transfer belt motor drive boards

- Definition - [B]

Main CPU does not receive the response signal from the transfer belt drive board after 3 trials.

<Possible causes>

- Poor connection between the main control board and transfer belt drive board
- Main control board defective
- Transfer belt drive board defective

SC603: Communication error within main control boards

- Definition - [B]

CPUs in the main control board cannot communicate properly with each other.

<Possible causes>

- Main control board defective

SC604: Serial signal error in main control board

- Definition - [B]

Writing and reading serial signals for the DPRAM produces discrepancies.

<Possible causes>

- Main control board defective

SC605: Communication error between main control and IPU boards

- Definition - [B]

Main CPU cannot communicate with the IPU CPU properly.

<Possible causes>

- Poor connection between the main control board and IPU board
- Main control board defective
- IPU board defective

SC622: Communication error between main control board and display editor

- Definition - [C]

Main CPU cannot start communication with the editor CPU properly.

<Possible causes>

- Poor connection between the main control board and the display editor
- Main control board defective
- Option interface board defective (FU301)
- Display editor board defective

SC623: Communication error between main control board and projector unit

- Definition - [B]

Main CPU cannot start communication with the projector unit properly.

<Possible causes>

- Poor connection between the main control board and Projector unit
- Main control board defective
- Option interface board defective
- Projector control board defective

1.10 OPTIONAL EQUIPMENTS

SC700: DJF feed-in motor abnormal

SC701: DJF belt drive motor abnormal

SC702: DJF feed out motor abnormal

- Definition - [D]

Encoder pulse is not detected by the DJF main board under each motor on condition. The first time, just an original jam occurs. The second time, an SC is displayed.

<Possible causes>

- DJF feed-in motor defective
- DJF belt drive motor defective
- DJF feed out motor defective

SC730: Sorter motor abnormal

- Definition - [B]

Encoder pulse is not detected by the sorter control board for 200 msec. after the sorter motor starts. A paper jam indication is displayed the first time. An SC is displayed for the second time.

<Possible causes>

- Sorter motor defective

SC770: Display editor abnormal

- Definition - [C]

The display editor sends an abnormal signal to the main control board.

<Possible causes>

- Display editor defective

SC790: Projector lamp does not turn on

- Definition - [C]

Projector lamp does not turn on 100 msec. after 10 V (or more) is applied to the lamp.

<Possible causes>

- Projector lamp open
- Thermofuse blown

SC791: Projector lamp does not turn off

- Definition - [C]
  Projector lamp stays on when it should turn off.

<Possible causes>
- Projector lamp regulator defective

SC792: Projector lamp overheat

- Definition - [C]
  Projector control board detects the lamp overheat condition through the thermistor.

<Possible causes>
- Projector lamp regulator defective
- Thermistor defective

1.11 OTHERS

SC900: Bk-total counter not on

- Definition - [B]
  Bk-total counter does not turn on.

<Possible causes>
- Bk-total counter defective
- DC power supply board defective (FU802, FU804)

SC901: Bk-total counter not off

- Definition - [B]
  Bk-total counter does not turn off.

<Possible causes>
- Bk-total counter defective

SC902: FC-total counter does not turn on

SC903: FC-total counter does not turn off

- Definition - [B]
  FC-total counter does not turn on or off.

<Possible causes>
- FC-total counter defective

2. BLOWN FUSE CONDITIONS

Fuse	Rating		Symptom (Main Switch: ON)
	115V	220 – 240V	
DC Power Supply Board			
FU801	15A/125V	5A/250V	No response
FU802	6.3A/125V	6.3A/250V	SC900 (Bk-total counter not on)
FU803	6.3A/125V	6.3A/250V	SC121 (Scanner HP sensor abnormal - stays on) or SC120 (Scanner HP sensor abnormal - stays off)
FU804	6.3A/125V	6.3A/250V	SC900 (Bk-total counter not on)
FU805	6.3A/125V	6.3A/250V	SC346 (Color - development motor lock)
FU806	6.3A/125V	6.3A/250V	No response
FU807	6.3A/125V	6.3A/250V	The LCD lights instantly and turns off. No other response
FU808	5A/125V	5A/250V	The LCD lights instantly and turns off. No other response
Option Interface Board			
FU301 (5V)	3.15A/250V		The display editor screen stays on. SC622 (Communication error between main control board and display editor) appears when the Area editing key is pressed.
FU302 (24V)	3.15A/250V		When the display editor is used, the LCD screen is dim (not bright enough). No other abnormal condition.

COPIER ELECTRICAL COMPONENTS

*: P = Printer
S = Scanner

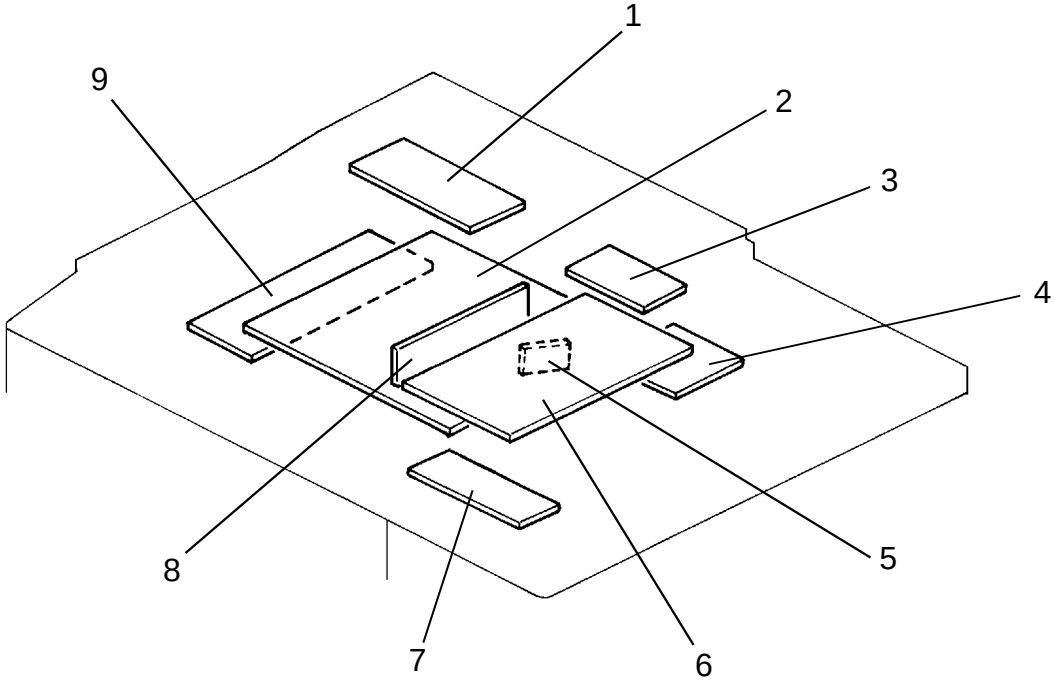
Symbol	Name	Index No.	P to P	
Printed Circuit Boards				
PCB 1	DC power supply	18	P*	C3
PCB 2	Lamp regulator	1	S*	K11
PCB 3	AC drive	9	P	A10
PCB 4	High voltage supply - C/G	10	P	D15 – D16
PCB 5	High voltage supply - B	23	P	G5
PCB 6	High voltage supply - T1/Pcc/BR	11	P	C15 – C16
PCB 7	High voltage supply - T2	15	P	H5
PCB 8	High voltage supply - D	20	P	JK13
PCB 9	Main control	14	P	F10
PCB10	Interface 1	19	P	K14
PCB11	Interface 2	16	P	L6 – L7
PCB12	Transfer belt motor drive	13	P	L10
PCB13	Paper feed interface	17	P	D3
PCB14	Noise filter	21	P	A3
PCB15	ID sensor	120	P	G12 – G13
PCB16	Operation panel	22	P	C5
PCB17	Polygon motor drive	7	P	G15 –G16
PCB18	CCD	8	S	E6 – E7
PCB19	Scanner control	6	S	G3 – G4
PCB20	Scanner drive	3	S	IJ6 – IJ7
PCB21	IPU board	2	S	I13
PCB22	IPU interface	4	S	D12 – D13
PCB23	Option interface	12	S	I10
PCB24	LD drive	5	S	G16
PCB25	Laser synchronizing detector	62	S	I16
PCB26	Paper width detecting	121	P	KL8
Motors				
M 1	Bk - Development drive	42	P	J15 – J16
M 2	C - Sleeve	28	P	D5
M 3	M - Sleeve	32	P	E5
M 4	Y - Sleeve	31	P	F5
M 5	Drum	25	P	J15 – J16
M 6	Bk - Sleeve	27	P	I15 – I16
M 7	Transport	41	P	F5
M 8	Color - Development drive	24	P	K15 – K16
M 9	Cleaning	29	P	B13
M10	Scanner	26	S	H8

Symbol	Name	Index No.	P to P	
M11	Transfer belt	30	P	K12
M12	Paper feed	36	P	K1
M13	Polygon	43	P	G16
M14	Bk - Toner supply	40	P	G16
M15	C - Toner supply	39	P	H16
M16	M - Toner supply	38	P	H16
M17	Y - Toner supply	37	P	H16
M18	1st tray lift	33	P	I1
M19	2nd tray lift	34	P	I1
M20	3rd tray lift	35	P	I1
Fan Motors				
FM 1	Fusing exhaust	45	P	DE13
FM 2	Charge inlet	44	P	E13
FM 3	Inner cooling	53	P	G13
FM 4	IPU cooling	48	P	H13
FM 5	Polygon motor cooling	49	P	H13
FM6/7	Transport	51/50	P	J4 – J5
FM8/9	Development exhaust	54/55	P	E13
FM10	Optics exhaust	47	S	H6
FM11	LD cooling	46	P	I15 – I16
FM12/13	Optics cooling	56/57	S	I8
FM14	DC power supply cooling	52	P	D3
Sensors				
S 1	By-pass feed table	69	P	EF15
S 2	Oil end	86	P	A13
S 3	Exit	91	P	B13
S 4	Transfer belt position	63	P	D13
S 5	Humidity	84	P	G12
S 6	Drum potential	118	P	H13
S 7	M - Toner density	89	P	E8
S 8	Y - Toner density	88	P	F8
S 9	Bk - Toner density	92	P	FG8 – FG9
S10	C - Toner density	90	P	G8 – G9
S11	Transport	87	P	F7 – F8
S12	Registration	70	P	F7 – F8
S13	Registration guide set	66	P	FG7 – FG8
S14	Transfer roller position	68	P	G7 – G8
S15	By-pass paper end	67	P	K8
S16	By-pass length	65	P	K8
S17	Toner overflow	82	P	K1

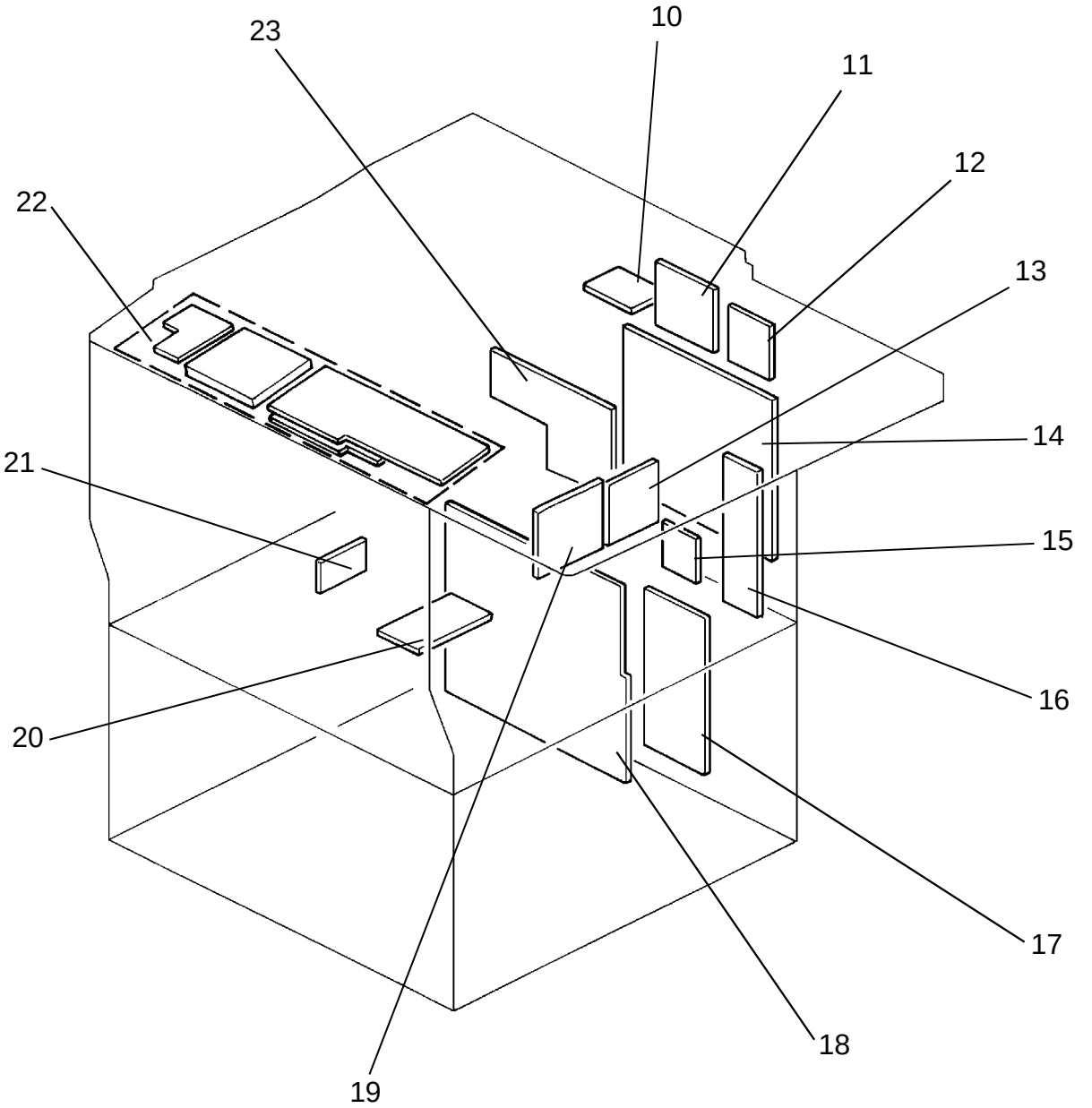
Symbol	Name	Index No.	P to P	
S18	1st lift	72	P	E1
S19	2nd lift	73	P	E1
S20	3rd lift	76	P	H1
S21	1st paper end	85	P	E1
S22	2nd paper end	83	P	F1
S23	3rd paper end	80	P	H1
S24	1st paper feed	78	P	F1
S25	2nd paper feed	81	P	FG1
S26	3rd paper feed	79	P	G1
S27	Original length - 1	61	S	I8
S28	Original length - 2	59	S	J8
S29	Original width	98	S	J8
S30	Scanner unit lift	60	S	K8
S31	Platen cover position	58	S	K8
S32	Scanner HP	99	S	JK8
Switches				
SW1/2/3/4	Front door safety	94/95/96/97	P	B15
SW5/6	Vertical transport set	74/75	P	KL1
SW 7	Main	93	P	B6
SW 8	2nd tray set	71	P	H1
SW 9	3rd tray set	77	P	HI1
SW10	1st paper size	64	P	J1
Magnetic Clutches				
MC1	Lubricant brush	101	P	H15 – H16
MC2	Transfer belt position	100	P	I15 – I16
MC3	By-pass feed	104	P	K8
MC4	Registration	103	P	I4 – I5
MC5	Transfer roller position	102	P	I4 – I5
MC6	1st feed	106	P	F1
MC7	2nd feed	107	P	G1
MC8	3rd feed	108	P	G1
Solenoids				
SOL 1	Cleaning entrance seal	115	P	AB15
SOL 2	Lubricant brush	117	P	F15
SOL 3	Cleaning blade	116	P	F15
SOL 4	By-pass pick-up	105	P	K8
SOL 5	1st pick-up	114	P	E1
SOL 6	2nd pick-up	112	P	F1
SOL 7	3rd pick-up	110	P	H1
SOL 8	1st separation roller	113	P	F1

Symbol	Name	Index No.	P to P	
SOL 9	2nd separation roller	111	P	G1
SOL10	3rd separation roller	109	P	G1
Lamps				
L1	Fusing	135	P	A14
L2	Pressure roller	134	P	A14
L3	Exposure	122	S	K9 – K10
L4	Quenching	119	P	G15 – G16
Heaters				
H1	Lower tray (option)	129	P	A4 – A5
H2	Upper tray (option)	127	P	A4 – A5
H3	Transfer belt	128	P	B4 – B5
H4	Optics anti-condensation	140	S	K12
H5	Drum	124	P	B10
Thermistors				
TH1	Fusing	126	P	A14
TH2	Pressure roller	133	P	A14
Thermofuses				
TF1	Fusing	125	P	A14
TF2	Pressure roller	132	P	A14
Thermoswitch				
TS1	Optics	123	S	K10
Counters				
CO1	Black total	136	P	D15
CO2	Full color total	137	P	DE15
Others				
CB1	Circuit breaker	130	P	A1
RA1	Main power relay	138	P	AB7
NF1	Noise filter	131	P	A2
CC1	Choke coil	139	P	B9

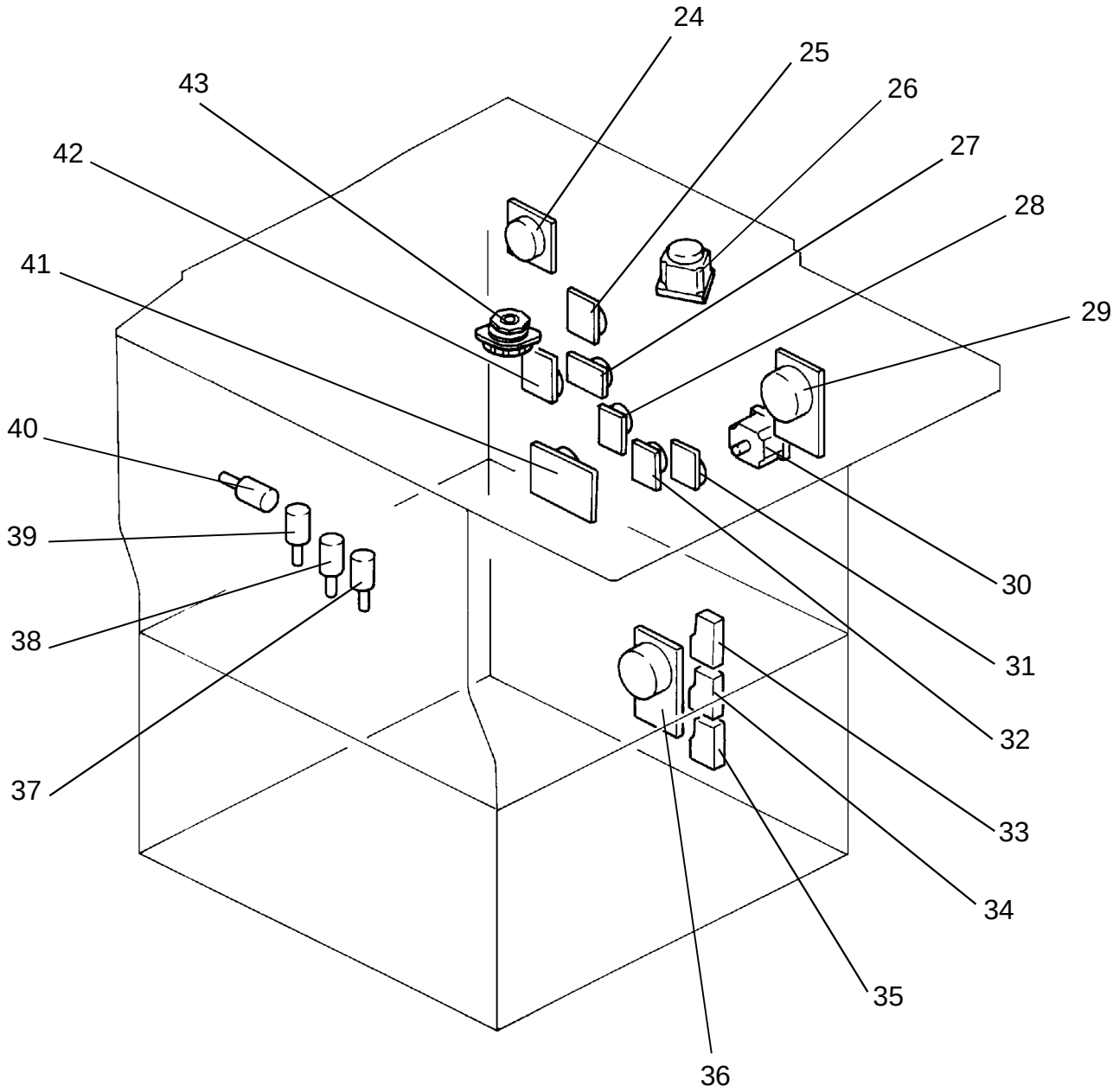
[PCB'S-1]



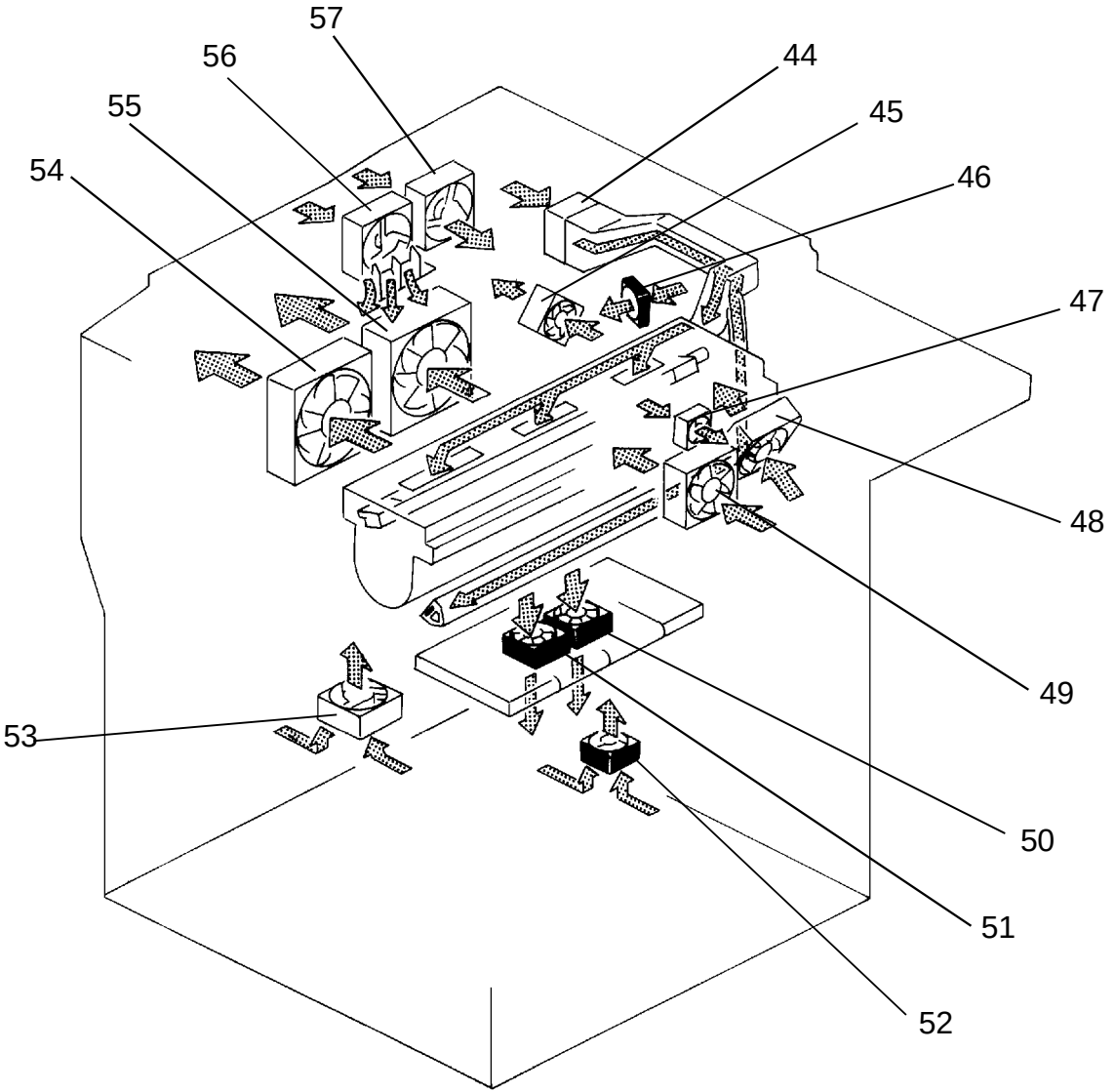
[PCB'S-2]



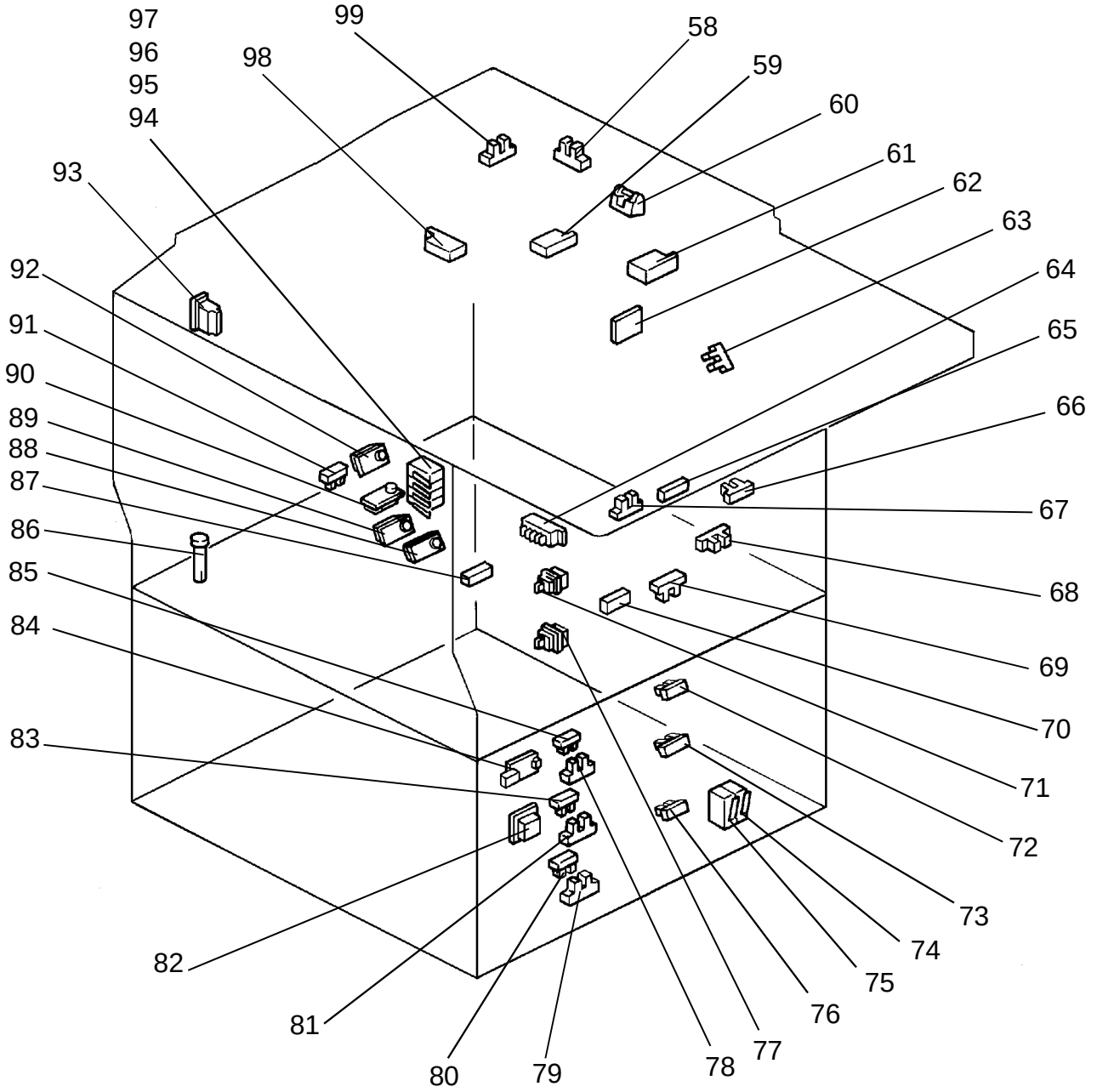
[MOTORS]



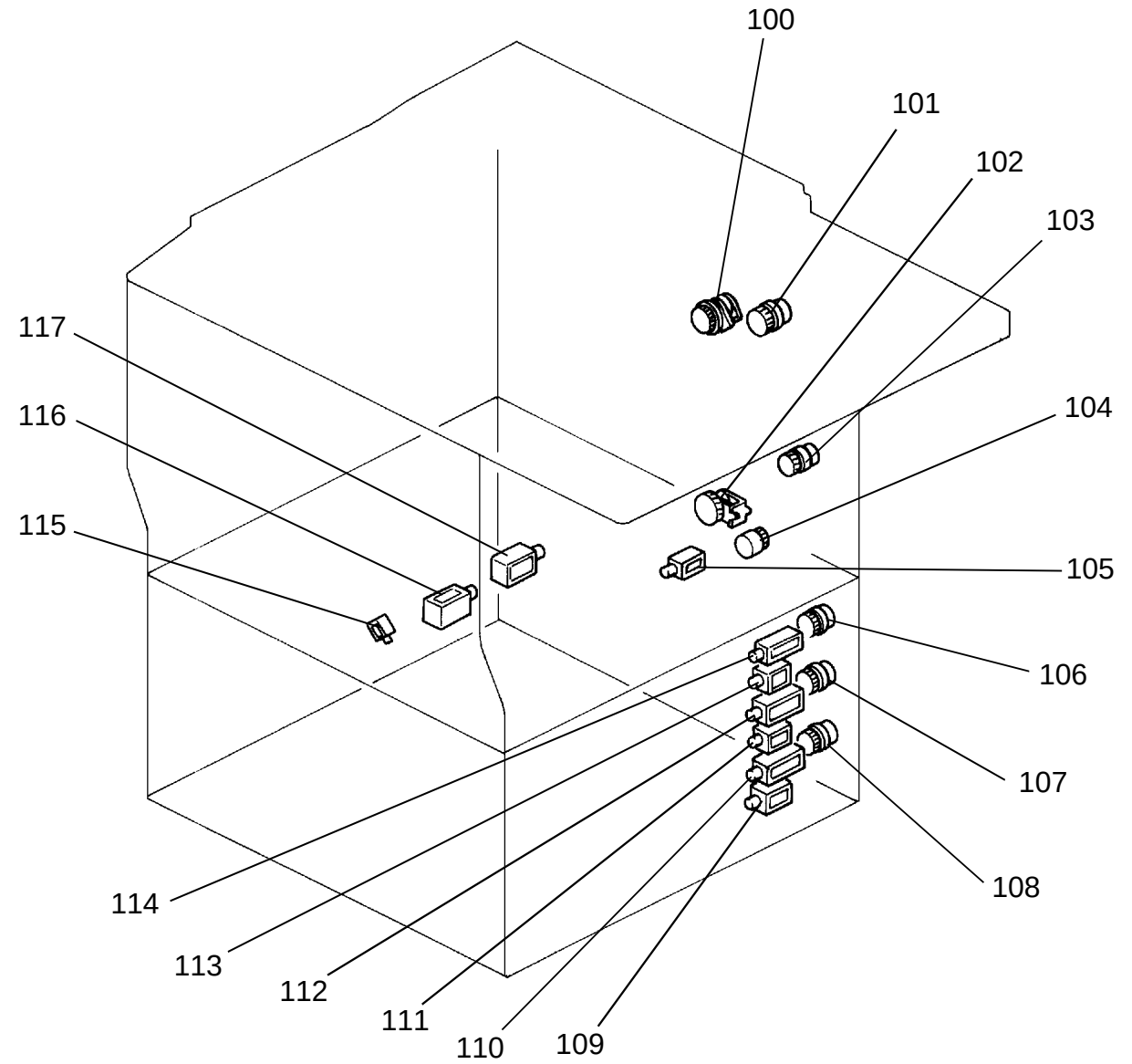
[FANS]



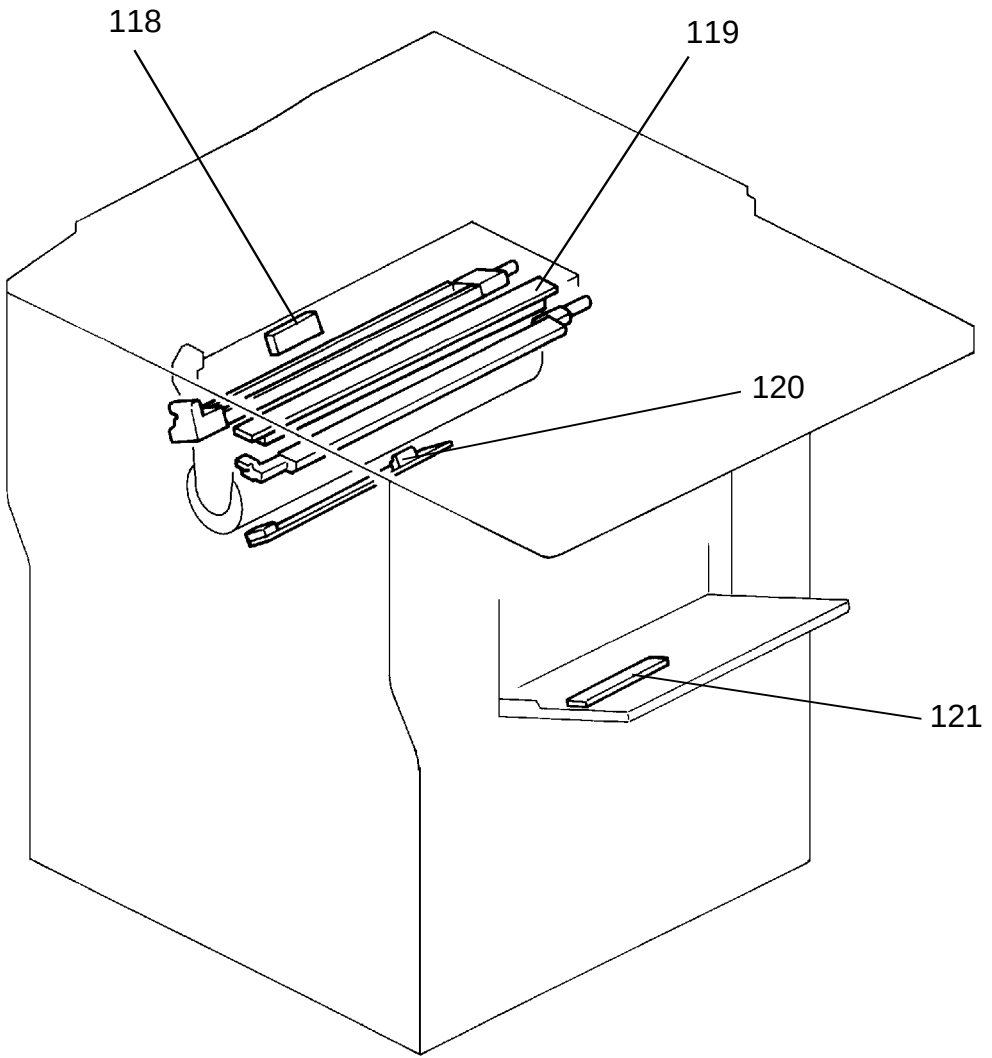
[SENSORS & SWITCHES]



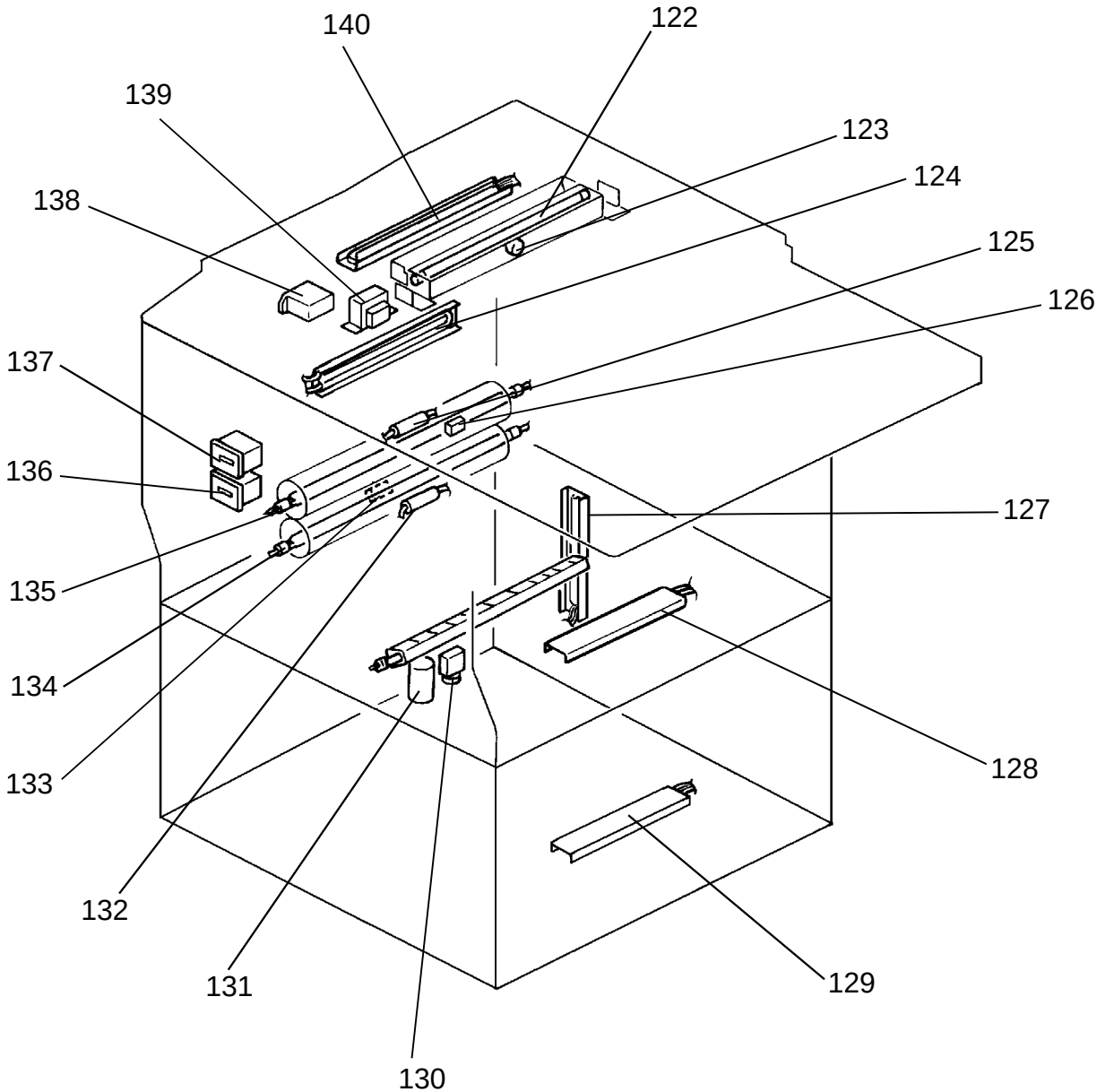
[CLUTHES & SOLENOIDS]



[OTHERS-1]



[OTHERS-2]


140
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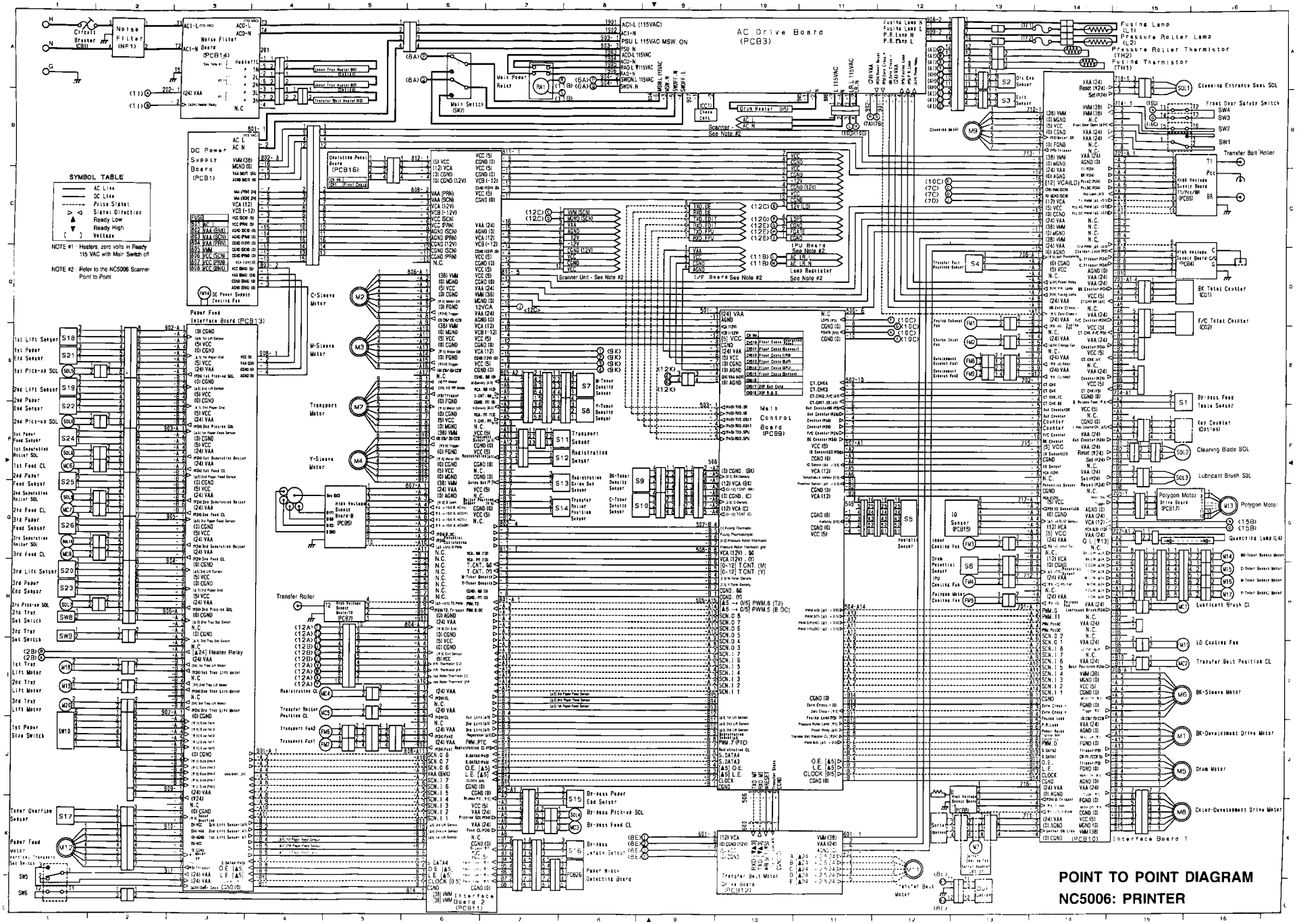
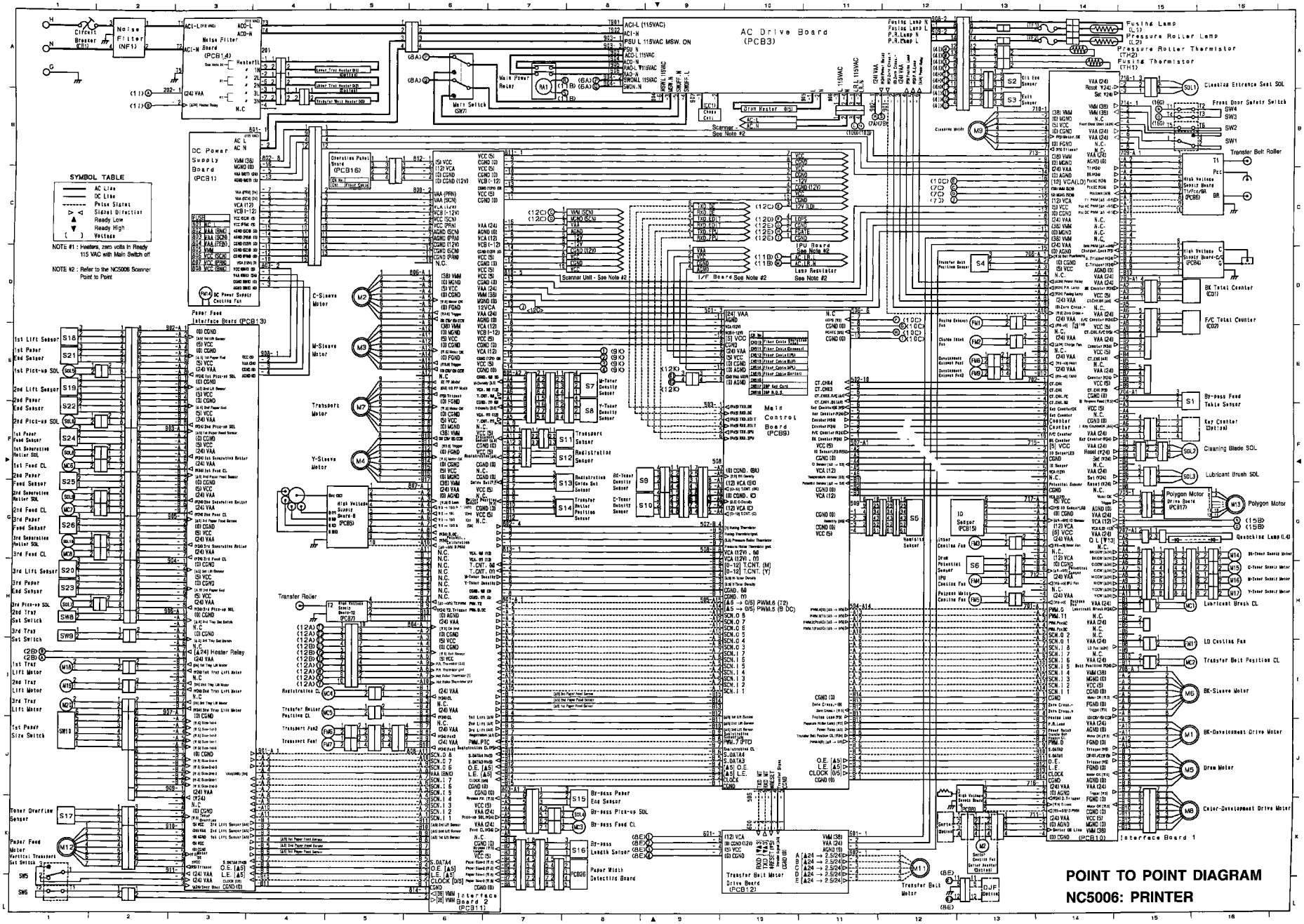


POINT TO POINT DIAGRAM
NC5006: PRINTER

LETD - 206
NC 5006 (FRONT)


AC Drive Board (PCB3)
DC Power Supply Board (PCB1)
Noise Filter Board (PCB1,4)
Noise Filter (NF1)
Circuit Breaker (CB1)
Main Power Relay
Main Switch SW7
Operation Panel Board (PCB16)
Scanner Unit - See Note #2
I/F Board See Note #2
Lamp Regulator See Note #2
Fusing Lamp (CL1)
Pressure Roller Lamp (CL2)
Pressure Roller Thermistor (TH2)
Fusing Thermistor (TH1)
Cleaning Entrance Seal SOL
Front Door Safety Switch
Transfer Belt Roller
BK Toner Counter (CO1)
F/C Total Counter (CO2)
By-pass Feed Table Sensor
Key Counter (Option)
Cleaning Blade SOL
Lubricant Brush SOL
Polygon Motor
Quenching Lamp (L4)
LD Cooling Fan
Transfer Belt Position CL
BK-Sleeve Motor
BK-Development Drive Motor
Drum Motor
Color-Development Drive Motor
Interface Board 1
Main Control Board (PCB9)
Interface Board 2 (PCB11)
Paper Feed Interface Board (PCB13)
Transfer Belt Motor Drive Board (PCB12)
Paper Width Detecting Board
Transfer Belt Motor
C-Sleeve Motor
M-Sleeve Motor
Transport Motor
Y-Sleeve Motor
Paper Feed Motor
Vertical Transport Set Switch
Toner Overflow Sensor
Transfer Roller
Registration CL
Transfer Roller Position CL
Transport Fan2
Transport Fan
Heater Relay
Heaterfk
Transfer Belt Heater (HB1)
Drum Heater (HB2)
Transfer Belt Heater (HB3)
Transfer Belt Heater (HB4)
SYMBOL TABLE
AC Line
DC Line
Pulse Signal
Signal Direction
Ready Low
Ready High
Voltage
NOTE #1 : Heaters, zero volts in Ready
115 VAC with Main Switch off
NOTE #2 : Refer to the NC5006 Scanner Point to Point
POINT TO POINT DIAGRAM
NC5006: PRINTER

IMPORTANT SAFETY NOTICES

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the copier and peripherals, make sure that the copier power cord is unplugged.
2. The wall outlet should be near the copier and easily accessible.
3. Note that some components of the copier and the paper tray unit are supplied with electrical voltage even if the main switch is turned off.
4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
5. If the hot roller temperature is low when the main switch is turned on, the copier starts process control self check automatically. Keep hands away from the mechanical and the electrical components to avoid any injury.
6. If the start key is pressed before the copier completes the warm-up period (Start key starts blinking red and green alternatively), keep hands away from the mechanical and the electrical components as the copier starts making copies as soon as the warm-up period is completed.
7. The inside and the metal parts of the fusing unit become extremely hot while the copier is operating. Be careful to avoid touching those components with your bare hands.

HEALTH SAFETY CONDITIONS

1. Never operate the copier without the ozone filters installed.
2. Always replace the ozone filters with the specified ones at the specified intervals.
3. Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

1. The copier and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.
2. The RAM board on the main control board has a lithium battery which can explode if replaced incorrectly. Replace the battery only with an identical one. The manufacturer recommends replacing the entire RAM board. Do not recharge or burn this battery. Used batteries must be handled in accordance with local regulations.

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SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate the toner bottle or the used toner. Toner dust may ignite suddenly when exposed to open flame.
2. Dispose of used toner, developer, and organic photoconductor according to local regulations. (These are non-toxic supplies.)
3. Dispose of replaced parts in accordance with local regulations.
4. When keeping used lithium batteries in order to dispose of them later, do not put more than 100 batteries per sealed box. Storing larger numbers or not sealing them apart may lead to chemical reactions and heat build-up.

LASER SAFETY

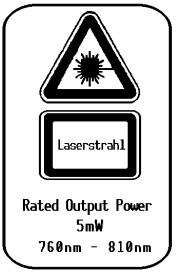
The Center for Devices and Radiological Health (CDRH) prohibits the repair of laser-based optical units in the field. The optical housing unit can only be repaired in a factory or at a location with the requisite equipment. The laser subsystem is replaceable in the field by a qualified Customer Engineer. The laser chassis is not repairable in the field. Customer engineers are therefore directed to return all chassis and laser subsystems to the factory or service depot when replacement of the optical subsystem is required.

WARNING:
Use of controls, or adjustment, or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

WARNING FOR LASER UNIT

WARNING: Turn off the main switch before attempting any of the procedures in the Laser Unit section. Laser beams can seriously damage your eyes.

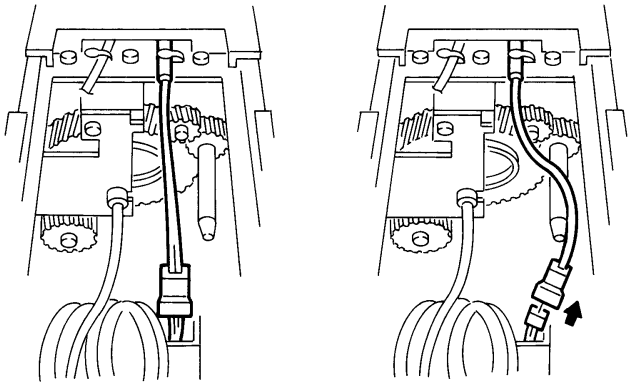
CAUTION MARKING:



RICOH	Technical Bulletin	No. RTB-001
SUBJECT: Oil end sensor harness wiring		DATE: April 30 '94 PAGE: 1 of 2
PREPARED BY: S. MANO CHECKED BY: S. Hamano	FROM: 2nd Technical Support Section	
CLASSIFICATION: ■ Action Required ☐ Troubleshooting ☐ Retrofit Information	☐ Revision of service manual ☐ Information only ☐ Other	MODEL: DFC-α

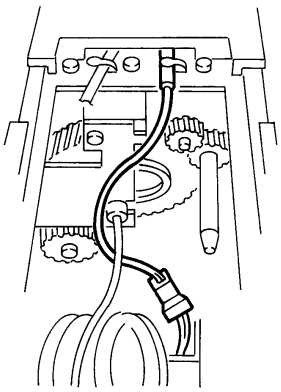
We have found the following problem in the factory.

The oil end sensor harness is caught by the positioning pin and it is disconnected after the fusing unit is pulled out and pushed in several times. If this occurs, oil end is not detected.



Normal condition When problem occur

To prevent this, the wiring route has been changed as shown below.



Caution: When reconnecting the hot roller's fusing lamp after replacing hot roller and/or pressure roller, be sure to route the oil end sensor harness as shown above.

The oil end sensor harness wiring will be changed from the first May 1994 production machine. (The cut-in serial number is as shown below.)

A109-17: A351405xxxx ~

A109-22: 6794050001 ~

A109-27: A351405xxxx ~

For the machines prior to the above serial number, we recommend changing the wiring at the machine installation.

RICOH	Technical Bulletin	No. RTB-002
SUBJECT: MANUAL CORRECTIONS		DATE: MAY 15 '94 PAGE: 1 of 2
PREPARED BY:S. MANO CHECKED BY: S. Hamano	FROM: 2nd Technical Support Section	
CLASSIFICATION: ☐ Action Required ☐ Troubleshooting ☐ Retrofit Information	■ Revision of service manual ☐ Information only ☐ Other	MODEL: DFC - α

Please correct your service manual as follows:

PAGE 4-21 Item "❷" Note

Incorrect:

standard data: (Standard data of the potential sensor calibration is blank)

Correct:

standard data: 230 ±20

PAGE 4-21 Item "❹"

Incorrect:

Indicates data (Vsg, Vsp, Vsg/Vsp) relate to ID sensor for each color and potential sensor output while detecting the ID sensor pattern.

Correct:

Not used. (Actually this page 3 exists but all data indicated is " 0 ")

PAGE 4-24 Item "❶"

Incorrect:

Default setting must be selected.

Default:**PID**

Correct:

"PID" setting must be selected.

Default: **Reset**

PAGE 4-26 Item "❼"

Incorrect:

Table of item ❼ is tinted

Correct:

Table of item ❼ is not tinted. This means the data can be changed in the field.
Select " Display " when editor is installed.

PAGE 4-42 Step #1, #3, #6

Incorrect:

1. Confirm that the main switch is **ON**.

2. Turn the DIP-switch 501 No.4 of the main control board **ON and OFF.**

3. Turn the main switch **OFF and ON.**

6. Replace all developer. (See section 5, Developer section.)

Correct:

1. Confirm that the main switch is **OFF**.

2. Turn the DIP-switch 501 No.4 of the main control board **ON.**

3. Turn the main switch **ON. Then turn OFF the DIP-switch 501 No.4.**

6. Replace all developer. (See section 5, Developer section.)

NOTE: SP4-2, No.403 (Process Control Mode Selection) - change the setting to "PID".

PAGE 5-69 DEVELOPER INSTALLATION Step #10

Incorrect:

Shake **2 packs** of developer [G] 20 times then pour them in.

Correct:

Shake **a pack** of **black** developer [G] 20 times then pour them in.

RICOH	Technical Bulletin	No. RTB-003

SUBJECT: SP402 ADJUSTMENT	DATE: MAY 15 '94 PAGE: 1 of 2
PREPARED BY: S.MANO CHECKED BY: S. Hamano	FROM: 2nd Technical Support Section

CLASSIFICATION:		MODEL:
☐ Action Required ■ Troubleshooting ☐ Retrofit Information	■ Revision of service manual ☐ Information only ☐ Other	DFC - α

SYMPTOM

If paper becomes very dry under low humidity, the following symptoms are most visible.

1. Rough solid image surface and poor color reproduction in 4C mode.

2. Scattered toner around solid image areas in 1C mode.

The level of these symptoms depend on paper kinds such as smoothness and electrical resistance, and how paper is dried.

POSSIBLE CAUSE

The transfer belt bias and transfer roller bias are adjusted for the machine under normal, high, and low humidity conditions. The absolute humidity is detected by the humidity sensor and the bias voltage changes accordingly. However, as the humidity sensor cannot detect the moisture in the paper, those bias settings are for the paper just from the package and not for too dried or too moistened paper.

Therefore, when we face the above symptoms, we can use the SP402 as a troubleshooting but it might not solve them completely.

The best solution is to instruct the customer to keep the paper as fresh as possible and to use a good paper brand.

COUNTERMEASURE

The following is how to use the SP as a troubleshooting.

1. ROUGH SOLID IMAGE SURFACE AND POOR COLOR REPRODUCTION IN 4C MODE

Increase the transfer roller bias for low humidity to improve this symptom.

Adjustment range: From 100% (1700V) to 150% (2550V)

If you have following side effect, decrease the setting to improve the side effect to an acceptable level:

1) Incomplete toner transfer for low density areas (Too much transfer ability)

2) Feed roller mark in half toner image area in 1C mode

You should also check if the fresh paper can get reasonable copy image or not.

If not, decrease the setting.

2. SCATTERED TONER AROUND SOLID IMAGE AREAS IN 1C MODE

Increase the transfer belt bias for low humidity to improve this symptom.

Adjustment range: From 100% (2000V) to 140% (2800V)

If you have the following side effect, decrease the setting to improve the side effect to an acceptable level:

1) The edge of letters become blurred with scattered toner (Toner scatters not all over around the image but along the letter edges as thin lines.)

You should also check if the fresh paper can reasonable copy image or not. If not, decrease the setting.

RICOH	Technical Bulletin	No. RTB-004
SUBJECT:MAIN BOARD REPLACEMENT IN THE FIELD		DATE: June 15 '94 PAGE: 1 of 1
PREPARED BY: S. MANO CHECKED BY: S. Hamano	FROM: 2nd Technical Support Section	
CLASSIFICATION: ■ Action Required ☐ Troubleshooting ☐ Retrofit Information	☐ Revision of service manual ☐ Information only ☐ Other	MODEL: DFC - α

Just after the mass-production started, the software (Main ROMs on the main control board) was modified. (We do not mention the detail in this RTB)

We replaced the ROMs on all the mass-produced machines before shipping. In other words, all of your machines have updated ROMs. (Up to now, the latest version main ROMs are A1095265E and A1095267E).

However, the main control boards shipped out as initial stock parts were shipped without the modification.

The main ROMs on the initial stock parts are A1095265B and A1095267B or A1095265D and A1095267D.

Therefore, when replacing the main control board in the field, please check the part number suffix of the main ROMs on the main control board. If the suffix is B or D (C does not exist), remove the main ROMs on the old main control board and install them on the new main control board.

It is possible that the following symptoms occur if the ROMs are not updated when replacing the main control board.

1. Toner scattering
2. Copy image leaning to some color (Bk,C,Y, mostly magenta).
3. Dirty background at the front or rear side of copies
4. Dirty background on entire copies
5. Toner spots on copies
6. Toner end misdetection
7. Toner end recovery error.

RICOH	Technical Bulletin	No. RTB-005
SUBJECT: ORIGINAL DOUBLE FEEDING		DATE:June 30, '94 PAGE: 1 of 2
PREPARED BY: S. MANO CHECKED BY: S. Hamano	FROM: 2nd Technical Support Section	
CLASSIFICATION: ■ Action Required ■ Troubleshooting ■ Retrofit Information	☐ Revision of service manual ☐ Information only ☐ Other	MODEL:DUAL JOB FEEDER FOR DFC-α

This is additional information of F400 RTB-025 "DJF double feeding".

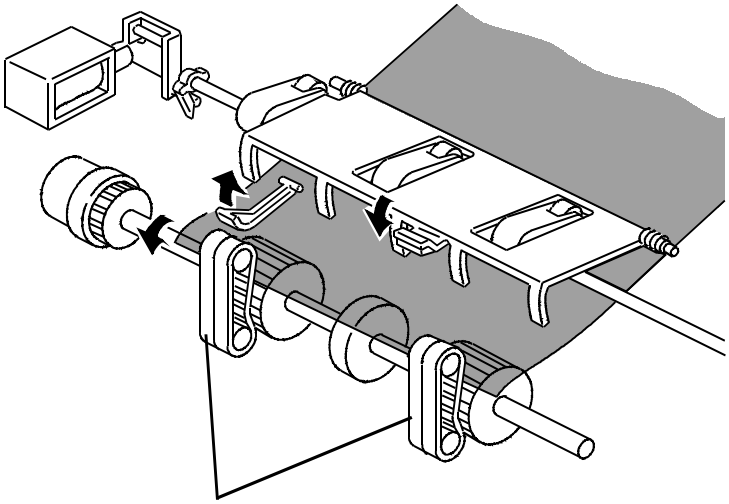
<PHENOMENON>

Original double feeding (two or more sheets of the originals are fed at a time)

<POSSIBLE CAUSE>

The separation belts become dirty with the toner, loosing the friction to separate the originals.

This is especially true when the customer feeds lots of poorly fused originals such as laser output or cotton paper.



Separation Belts

<FIELD COUNTERMEASURE>

Replace the separation belts with the new parts. The new part number is A3769502.

The material of the separation belts has been changed to the one which less toner adheres to.

NOTE: Depending on the type of originals that the customer use, there is still a possibility that the separation belts become dirty. For those cases, cleaning the belts at every visits, which was introduced in the previous RTB, is recommended.

This modification is implemented from the following serial numbers.

A376-10: 537403xxxx

A376-15: 4124030001

A376-17: A3384030001

A376-22: 5324030001

A376-26: 3D80340001

A376-27: A3384030150

RICOH	Technical Bulletin	No. RTB-006
SUBJECT: Overtoning / Undertoning Countermeasures		Reissued on: Nov. 30, '94 DATE: OCT. 15 ,'94 PAGE: 1 of 2
PREPARED BY: S. Hizen CHECKED BY: S. Hamano	FROM: 2nd Technical Support Section	
CLASSIFICATION: ☐ Action Required ☐ Troubleshooting ☐ Retrofit Information	☐ Revision of service manual ■ Information only ☐ Other	MODEL: DFC-alpha

SYMPTOM 2: Overtoning

Overtoning in the development unit just after installing a new toner bottle at toner end

CAUSE:

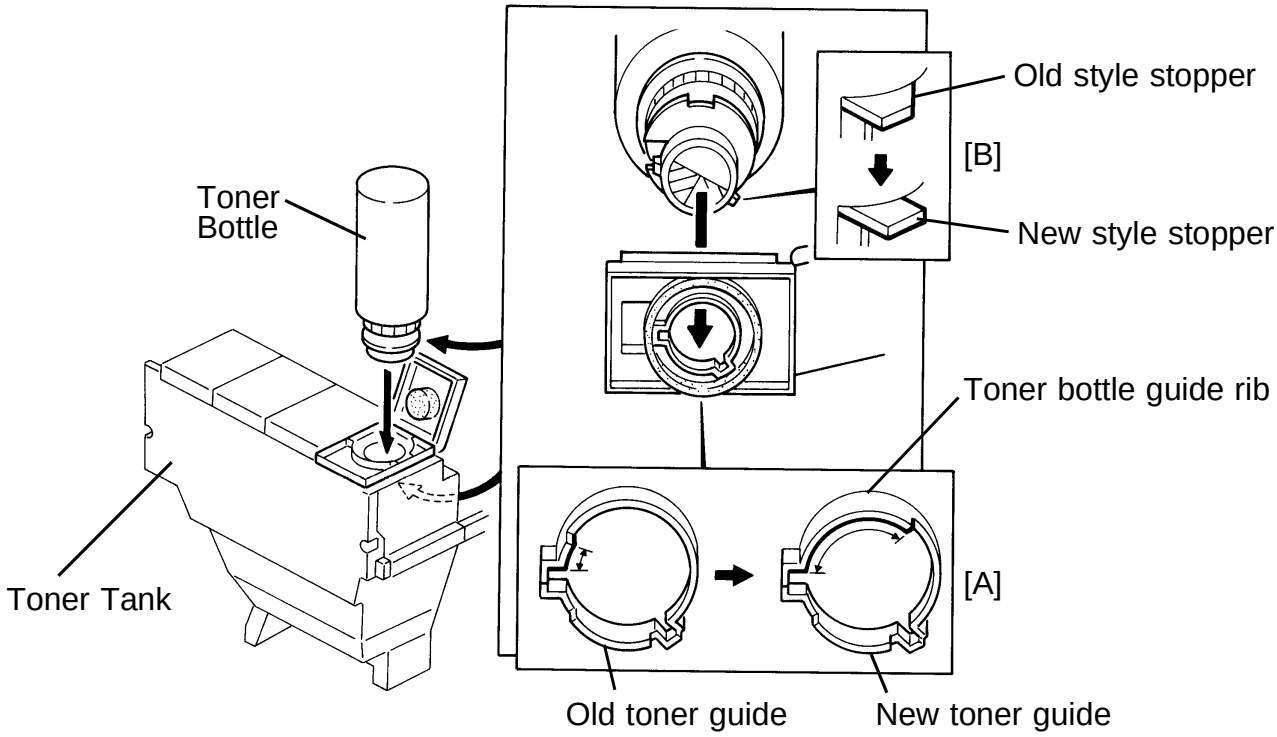
The toner fluidity increases when the toner bottle is shaken because the toner holds a lot of air. This results in excessive toner being supplied into the development unit when a new toner bottle is set by a customer.

COUNTERMEASURE:

The open angle of the toner bottle shutter has been changed from 180 degrees to 70 degrees to make the toner supply time longer. This is to reduce the amount of air held by toner at toner bottle installation. The following two modifications have been implemented to change the shutter open angle.

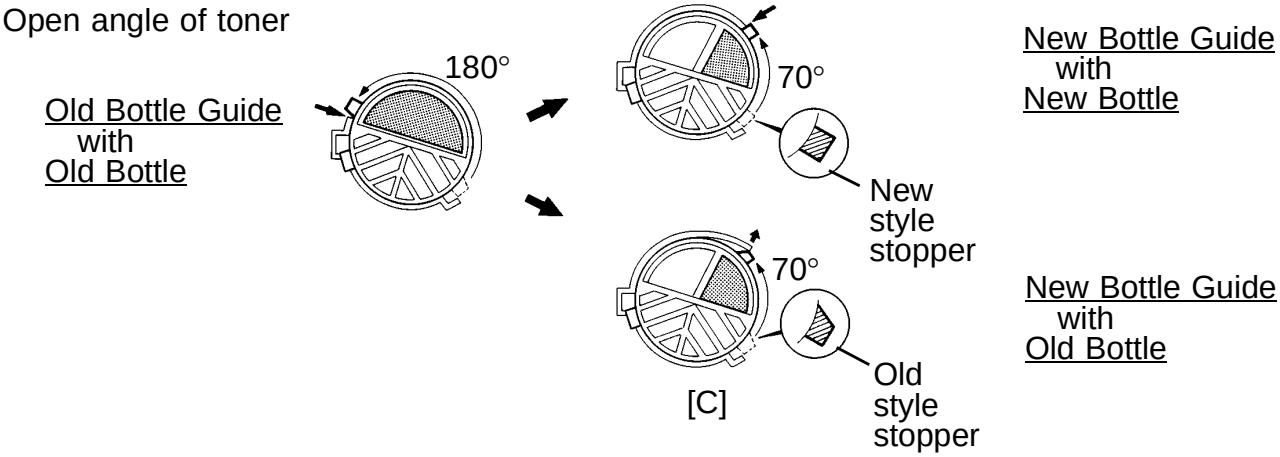
Toner Bottle Guide Modification:

The toner bottle guide rib has been changed as shown in the illustration [A] from the first production to stop the bottle rotation at 70 degrees.



Toner Bottle Modification:

The shape of the stopper has been changed as shown in the illustration [B] (on the previous page) from the following lots in each color toner. This is to prevent the stopper from going inside the guide rib as shown below [C] when the toner bottle is turned strongly.



Start Lot # for the new style shape stopper bottle.

Black: Lot #4416001

Cyan: Lot #4416001

Magenta Lot #4416001

Yellow Lot #4416001

SYMPTOM 2: Undertoning when making many copies with a high image ratio.

The Toner End indicator is on even if there is toner still in the bottle.

CAUSE:

The toner supply amount from the toner hopper to the development unit is not enough when making many copies with a high image ratio at the same time. This is due to the development ability limitation.

COUNTERMEASURE:

Instruct a customer to make copies using lengthwise paper feed rather than sideways paper feed. lengthwise feed takes longer than sideways feed. This allows enough toner be supplied to the development unit to develop copies with a high image ratio.

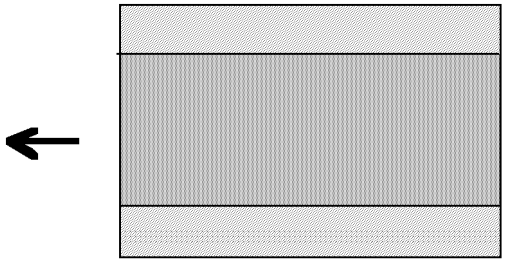
Note: Continuous copy runs using lengthwise paper cause the undertone problem on both sides of copy. (Please refer to RTB - 007 for details.)
Side-way paper feeding is recommended when more than 30 continuous copies are made.

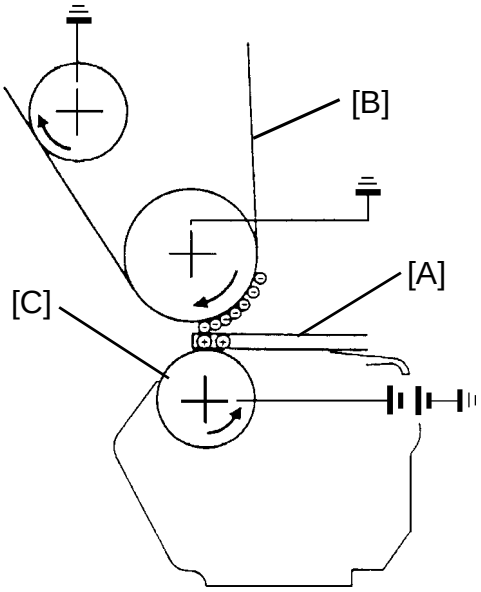
RICOH	Technical Bulletin	No. RTB-007
SUBJECT: Light image along both sides of the copy		DATE: OCT.15 '94 PAGE: 1 of 2
PREPARED BY: S. MANO CHECKED BY: S. Hamano	FROM: 2nd Technical Support Section	
CLASSIFICATION: ■ Action Required ■ Troubleshooting □ Retrofit Information	□ Revision of service manual □ Information only □ Other	MODEL:DFC-alpha

<SYMPTOM>

If the customer feeds small size paper (A4 or less/8 1/2 x 11 or less) mostly lengthwise, it is possible that the image density of **half tone** areas image on **both sides** will become lighter than the center area. (This symptom will be visible only when copying a half tone original and using wide size copy paper.)

To prevent this, when feeding small size paper (A4 or less/8 1/2 x 11 or less), feed the paper in sideways.





<REASON>

At the paper transfer area, the paper [A] affects the electrical resistance between the transfer belt [B] and the transfer roller [C]. When the paper exists, less paper transfer bias is applied from the transfer roller to the transfer belt.

If small size paper is continuously used, the front and rear areas of the transfer belt continuously receive a stronger paper transfer bias than the center area of the transfer belt. This is because the paper exists only at the center.

This gradually reduces the electrical resistance of the transfer belt ion the side. Especially when many OHP transparency sheets are fed, the possibility to cause this symptom will be higher due to higher paper transfer bias for OHP mode.

<COUNTERMEASURE>

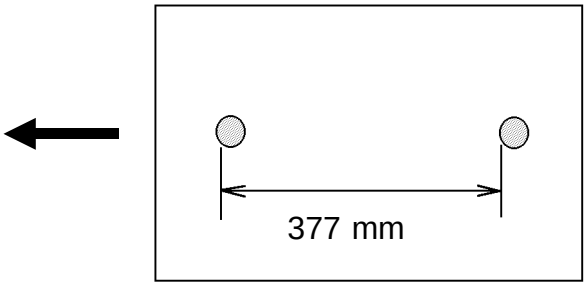
If this symptom is weak, after feeding several (about 50 sheets) of wide paper, the transfer belt's electrical resistance will become even, and the symptom will disappear. (So, if the customer feeds both narrow and wide paper alternately, the symptom does not appear.)

However, if this has no effect, you must replace the transfer belt. After replacing the transfer belt, please instruct the customer to feed the paper in sideways as frequently as possible.

RICOH	Technical Bulletin	No. RTB-008
SUBJECT: Dirty background spots (377mm pitch)		DATE: OCT. 15 '94 PAGE: 1 of 2
PREPARED BY: S. MANO CHECKED BY: S. Hamano	FROM: 2nd Technical Support Section	
CLASSIFICATION: ■ Action Required ■ Troubleshooting ☐ Retrofit Information	☐ Revision of service manual ☐ Information only ☐ Other	MODEL: DFC-alpha

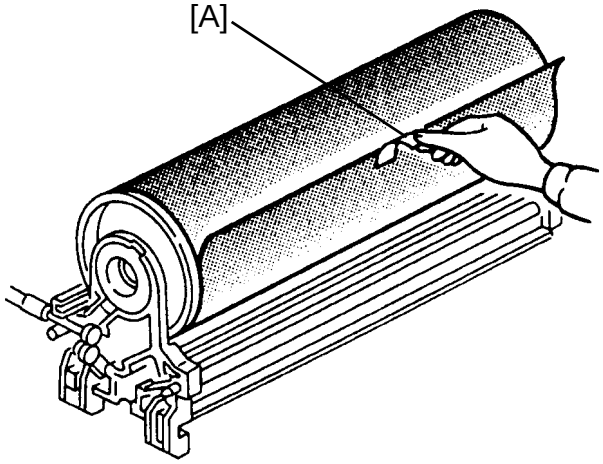
<SYMPTOM>

Slight dirty background areas appear. The distance between the background spots is 377mm. (diameter of the OPC drum is 120mm.)



<POSSIBLE CAUSE>

Some of the adhesive from the tape [A] fixing the drum protective sheet is on the OPC drum surface.



<INSTRUCTIONS>

Be sure not to contact the protective sheet tape with the OPC drum surface (Removing the adhesive from the drum surface is difficult).

The surface of the OPC drum used in this model is easily dissolved by alcohol. So, for normal maintenance, do not use alcohol.

However, you cannot remove the adhesive and all you can do is replace the OPC drum, try to use alcohol with risk as a final solution. In this case, after wiping off the adhesive, immediately remove the remaining alcohol on the OPC drum. Use the alcohol (isopropyl alcohol is better than ethyl alcohol or methyl alcohol) after mixing it with water because pure alcohol is too strong.

RICOH	Technical Bulletin	No. RTB-009
SUBJECT: Add Toner Indication without Color Indication		DATE: July 15, '95 PAGE: 1 of 3
PREPARED BY: N. Kaiya CHECKED BY:	FROM: 2nd Technical Support Section	
CLASSIFICATION: ☐ Action Required ☐ Revision of service manual ■ Troubleshooting ☐ Information only ☐ Retrofit Information ☐ Other		MODEL: DFC - α

Problem

Add toner Indication is lit without any color indication.

This problem happens when all of the following conditions occur.

1. Add toner condition is indicated for any of the color toners. The indication is normal at this point.
2. Black and white copy is selected. The add toner indication turns off and the print key turns green.
3. Editing, user program, color balance adjustment, user tool or any other mode which changes the display from standard screen is selected.
4. The front door is opened and closed. At this point, the add toner condition is cleared.
5. When the display returns to the standard screen, the add toner indicator is lit without any color indication.

Cause

Except for when the operation panel display is showing the standard display, the add toner condition is not cleared within the operation panel display software, even when toner replenishment is done. When the display returns to the standard screen, the add toner indication remains on the display without color indication.

RICOH **Technical Bulletin** **No. RTB-009**

SUBJECT: Add Toner Indication without Color Indication

DATE: July 15, '95
PAGE: 2 of 3

Countermeasure

Software modification is made. Two ROMs on the Main Board and two out of four ROMs on the Operation Panel Board are modified.

Main Board ROM
A109 5265F → G
A109 5267F → G

Operation Panel ROM: for -10, -17 machines
A109 5547C → D
A109 5548D → E
for -22 machine
A109 5647C → D
A109 5648D → E

Language ROM Kit	English	IC101	A544 5102C →	D (not service parts)
		IC102	A544 5103C →	D (not service parts)
	German	IC101	A544 5112B →	C (not service parts)
		IC102	A544 5113B →	C (not service parts)
	French	IC101	A544 5122B →	C (not service parts)
		IC102	A544 5123B →	C (not service parts)
	ItalianI	IC101	A544 5132A →	B (not service parts)
		IC102	A544 5133A →	B (not service parts)
	Spanish	IC101	A544 5142A →	B (not service parts)
		IC102	A544 5143A →	B (not service parts)

RICOH **Technical Bulletin** **No. RTB-009**

SUBJECT: Add Toner Indication without Color Indication

DATE: July 15, '95
PAGE: 3 of 3

CUT IN SERIAL NUMBER

A109-10	678502XXXX
A109-22	6795010001
A109-27	A3515010121
A109-17	A3515010001
A109-26	3E50150001
A109-29	A351502XXXX

Language ROM Kit : from Jan. '95 production

Note: For the moment, only English, German, French, Italian and spanish will be modified.

In case this problem is experienced in your field, please inform us. We will provide you with the master ROMs.

RICOH	Technical Bulletin	No. RTB-010
SUBJECT: Improvement of Copy Quality		DATE:August 31, '95 PAGE: 1 of 4
PREPARED BY: N. Kaiya CHECKED BY: M. Iwasa	FROM: 2nd Technical Support Section	
CLASSIFICATION: ☐ Action Required ☐ Troubleshooting ☐ Retrofit Information ☐ Revision of service manual ■ Information only ☐ Other		MODEL: DFC - α

This RTB explains the modification made to the DFC alpha to improve its copy quality.

Modified Parts

1. IPU Board
2. IPU ROM
3. Main Board ROM
4. Operation Panel Board ROM
5. An explanation sheet has been added to the Operating Instructions booklet.
   (Page 4/4 of this RTB)

Please refer to MB No. 31 for part numbers, interchangeability, and the cut in serial number.

Contents of the Modification

1. Improvement of the copy quality of photograph images

The copy quality of the photographic image varies depending on the type of original used. With the new machine, the type of original to be copied can be specified from the following three selections by User Tool 4. Sensitivity Adjustment, Photo Mode Setting

Printed Photo
Glossy Photo
Copied Photo

Based on the selection made, the copier will make adjustments to obtain the best copy quality. This is achieved as follows.

The IPU converts the RGB video signal received from the Scanner Control Board into a YMCBk video signal and outputs it to the LD unit. When doing this conversion, a color correction is made to compensate for the difference between the ideal and actual characteristics of each color toner. (Please refer to page 2-41 of the Service Manual for details). With this modification, three different sets of color correction coefficient are prepared to compensate for the differences in color reproduction resulting from differences in characteristics of the photographic original used. The adjustment made for each type of original is as follows.

Printed Photo

When Printed Photo is selected, the copy quality is basically the same as in the old machine.

Glossy Photo

Glossy photo should be selected when making copies from normal color photographs on photographic paper. With this type of original;

- green may be copied brighter (or lighter)
- gray may become bluish.

To compensate for these,

- green is converted with less cyan
- the high ID part of cyan is made lighter.

Also, the amount of UCR is reduced to improve the reproduction of dark areas of the original.

Copied Photo

Copied Photo should be selected when copying a copy. When doing this,

- a low ID area may not be reproduced well
- the copy may become reddish (strong magenta and less yellow).

To compensate for this:

- the low ID part of the original is reproduced darker
- yellow is reproduced darker and magenta is reproduced lighter.

General

For all three types of originals, The following improvements have been made.
The edge of black areas (for example, the girl's hair on the C4 test chart) may be too distinct (too black). To compensate for this, cyan, magenta, and yellow toner is added in such areas.

2. Improvement of Auto Letter / Photo Separation

The letter/photo separation process is basically the same as before. A new algorithm is used in the final evaluation process of the letter/photo separation to reduce separation errors.

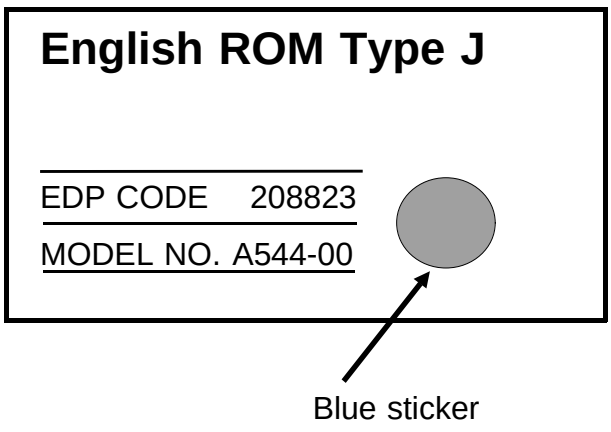
When installing Fiery Controller

When connecting a Fiery Controller to a modified machine, it is no longer necessary to replace the ROMs on the main board and the IPU board. Please refer to the following table for the necessary ROMs for each version of the IPU.

IPU Board P/N		A1095510	A1095515	A1095519
Action		Replace the ROM chips with the following ROM chips.	Replace the ROM chips with the following ROM chips.	Do not replace the ROMs.
IPU	IC303	V1.72	A1095517	-
	IC309	V1.72	A1095518	-
Main Board	IC509	A3996782	A3996782	-
	IC522	A3996783	A3996783	-

Language ROM kit

Language ROM kit, necessary for some versions of the machines, are also modified but the EDP code remains unchanged.
A round blue 9 mm sticker on the label indicates the new version of the ROM kit.

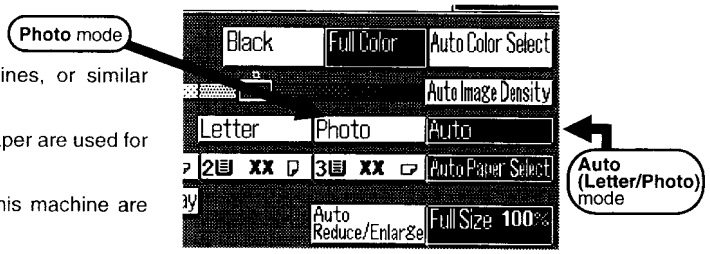


Supplemental Information

Photo Mode Selection (Printed Photo/Glossy Photo/Copied Photo)

When **Photo** mode or **Auto (Letter/Photo)** mode is selected, one of the following three modes is effective. You can change the setting by using User Tools.

★ **Printed Photo**
Photographs printed on brochures, magazines, or similar material are used for originals.
★ **Glossy Photo**
Normal color photographs on photographic paper are used for originals.
★ **Copied Photo**
Photocopies which have been copied with this machine are used for originals.



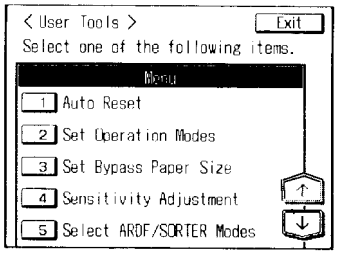
❒ **Note:** If you use black and white photographs as originals, select **Printed Photo** mode. Selecting Glossy Photo mode for black and white photoraghs may make the copy a little bit light.

How to Specify the Type of Original Photograph Images

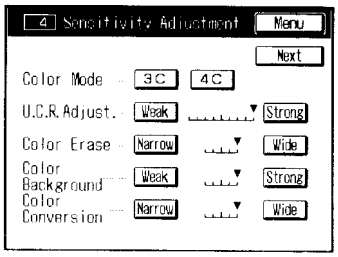
1. Access User Tools.

   1-1. Press the **Clear Modes/Stand By** key.
   1-2. Press the **Clear Stop** key more than 3 seconds until the User Tool Menu appears on the touch panel display.

2. Touch [4] (Sensitivity Adjustment) key.

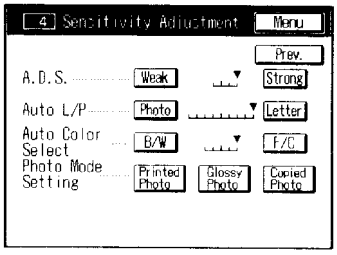


3. Touch the **Next** key.



4. The last line is for the Photo mode setting. Select one of the 3 photo modes.

   ❒ The factory setting (default) is **Printed Photo**. Once you have changed the settings with this user tool, the setting will always be effective when Photo mode or Auto Letter/Photo mode is selected. To change the setting, access user tools again.



5. Touch the **Menu** key to go back to the Menu Screen

6. Touch the **Exit** key to exit from User Tools.

Technical Bulletin No. RTB-011

SUBJECT: Sorter/DJF Installation	DATE: September 15, '95 PAGE: 1 of 2
PREPARED BY: N. Kaiya CHECKED BY: M. Iwasa	FROM: 2nd Technical Support Section

CLASSIFICATION:
- ■ Action Required
- ☐ Troubleshooting
- ☐ Retrofit Information
- ☐ Revision of service manual
- ☐ Information only
- ☐ Other

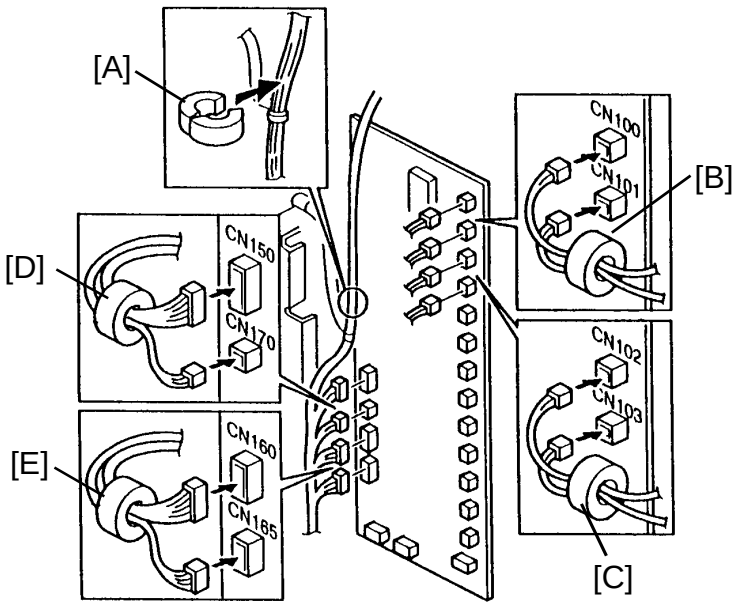
MODEL:
DFC - α

To comply with the CE mark, it is necessary to attach five ferrite cores when installing a sorter on DFC - α. The ferrite cores have been enclosed in the screw bag of the DFC - α from September production. Please refer to the following for the installation procedure of the ferrite cores.

Additional procedure for sorter installation

Ferrite core P/N 16070418 4 pcs.
Ferrite core P/N 16070721 1 pc.

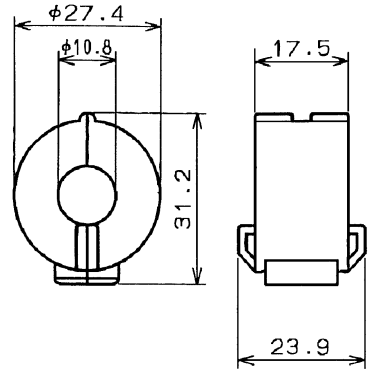
1. Turn off the main switch and unplug the machine.
2. Remove the sorter top cover (3 screws).
3. Remove the sorter rear cover (4 screws).
4. Attach the ferrite core ([A] P/N 16070721) to the DC harness as shown.
5. Remove the harnesses for second bin solenoid (CN100) and third bin solenoid (CN101). Pass the both harnesses through the ferrite core ([B] P/N 16070418) and reconnect them to the sorter main board.



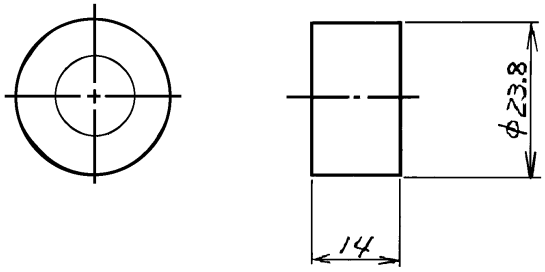
6. Remove the harnesses for the fourth bin solenoid (CN102) and the fifth bin solenoid (CN103). Pass the both harnesses through the ferrite core ([C] P/N 16070418) and reconnect them to the sorter main board.
7. Remove the harnesses for the encoder (CN150) and the entry sensor LED (CN170). Pass the both harnesses through the ferrite core ([D] P/N 16070418) and reconnect them to the sorter main board.
8. Remove the harnesses for the entry sensor Phototransistor (CN160) and the inlet sensor (CN165). Pass the both harnesses through the ferrite core ([E] P/N 16070418) and reconnect them to the sorter main board.
9. Reassemble the unit.

Ferrite Cores Packed with DFC - α

For Sorter Installation

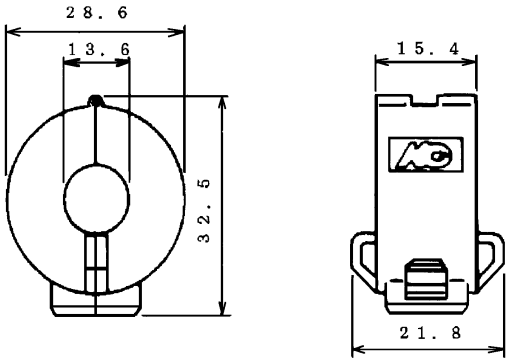


P/N 16070721

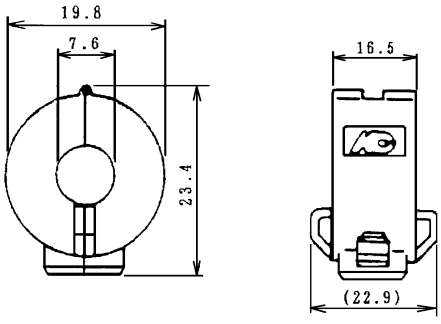


P/N 16070418

For DJF installation



P/N 16070638



P/N 16070623

RICOH	Technical Bulletin	No. RTB-012
SUBJECT: OPC Drum		DATE:October 15, '95 PAGE: 1 of 1
PREPARED BY: N. Kaiya CHECKED BY:	FROM: 2nd Technical Support Section	
CLASSIFICATION: ☐ Action Required ☐ Troubleshooting ☐ Retrofit Information ■ Revision of service manual ☐ Information only ☐ Other		MODEL: DFC - α

The OPC drum for DFC - α has been changed from P/N A1099510 to P/N A1729510 as informed by MB No.33.

Reason for the change

To extend the expected yield of the OPC drum, the OPC material has been improved. The yield for the old drum was expected to be 40k scans based on our laboratory test results. The OPC material was deteriorated by ozone or NOx gas generated mainly by corona discharge, resulting in dirty background after around 50k scans. The new OPC material is stronger against such gases. According to our laboratory tests, the level of background remains unchanged until after 80k scans.

Expected Yield

The expected yield will be changed from 40k scans to 80k scans.

Interchangeability

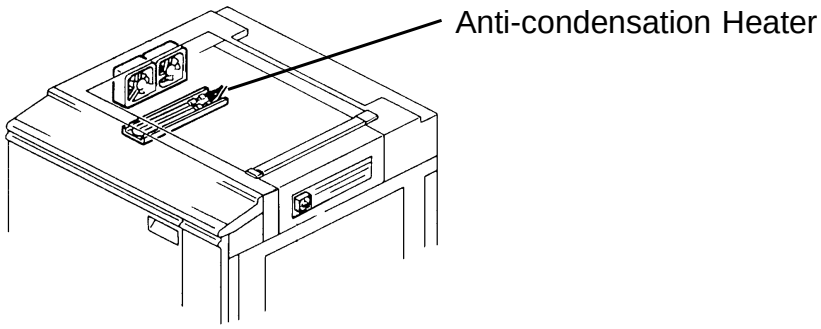
The old and new OPC drums are completely interchangeable.

RICOH	Technical Bulletin	No. RTB-013
SUBJECT: Anticondensation Heater		DATE: November 15, '95 PAGE: 1 of 1
PREPARED BY: N. Kaiya CHECKED BY:	FROM: 2nd Technical Support Section	
CLASSIFICATION: ■ Action Required ☐ Troubleshooting ☐ Retrofit Information ☐ Revision of service manual ☐ Information only ☐ Other		MODEL: DFC - α

The following problem has been found on the production line. Please check this point at machine installation.

Problem

The second scanner contacts the anti-condensation heater lead wire. As a result, jitter image may appear.

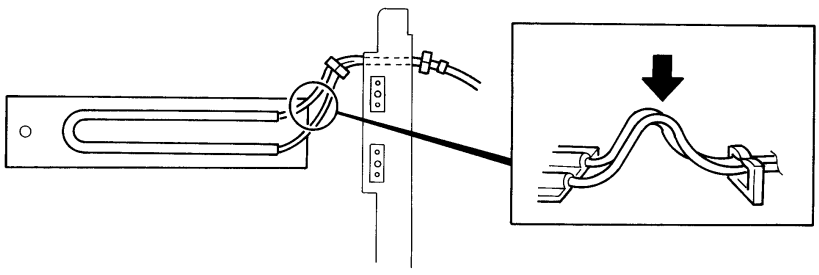


Cause

A part of the anti-condensation heater lead wire has bent above the scanner unit base plate.

Action

At installation, please check the routing of the anti-condensation heater lead wire. If it is bent away from the scanner unit base plate, please flatten the lead wire so it is within 5 mm away from the base plate.



Note: This problem has been found with some earlier September production machines, after new workers were assigned to assembling the scanner unit. The routing of the lead wire has been strictly checked on the production line since the problem was discovered, so we presume that this problem may happen only with a limited number of September production machines.

RICOH	Technical Bulletin	No. RTB-014
SUBJECT: Interface Kit Type A CE Mark Compliance		DATE: December 31, '95 PAGE: 1 of 9
PREPARED BY: N. Kaiya CHECKED BY:	FROM: 2nd Technical Support Section	
CLASSIFICATION: ☐ Action Required ■ Revision of service manual ☐ Troubleshooting ☐ Information only ☐ Retrofit Information ☐ Other		MODEL: Interface Kit Type A for DFC - α

To comply with the CE mark standards, the following modifications have been made to the Interface Kit Type A.

<Ferite Core>

Two ferrite cores are packed with the kit. Please refer to the attached installation procedure of the interface kit for where to use these ferrite cores.

<Main Board ROMs>

The mainboard ROMs packed with the interface kit have been standardized with the main board ROM on the copier main board.

A3996782 --> A1095104
A3996783 --> A1095106

At the same time, the ROMs have been updated from suffix L to suffix M.

A1095104L --> A1095104M
A1095106L --> A1095106M

The purpose of this update is to cut the signal from the scanner unit to the IPU when using the copier in scanner mode. This will reduce the amount of electromagnetic emission from the copier.

<CE Mark>

The CE mark is printed on the carton box. Please check this CE mark to distinguish new kits from old kits, since there is no serial number for this kit.

A5838520B

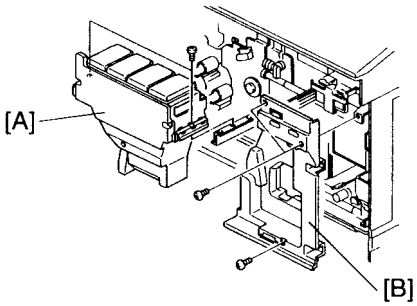
CONTROLLER INTERFACE KIT TYPE-A (Machine Code: A583-01)

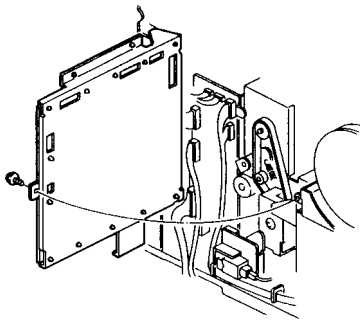
INSTALLATION PROCEDURE For Machine Code: A109

NOTE: THE CONTROLLER INTERFACE KIT MUST BE INSTALLED BY A CUSTOMER SERVICE REPRESENTATIVE WHO HAS COMPLETED THE TRAINING COURSES ON THE BASE COPIERS AND THE CONTROLLER.

INSTALLATION PROCEDURE

1. Remove the covers.



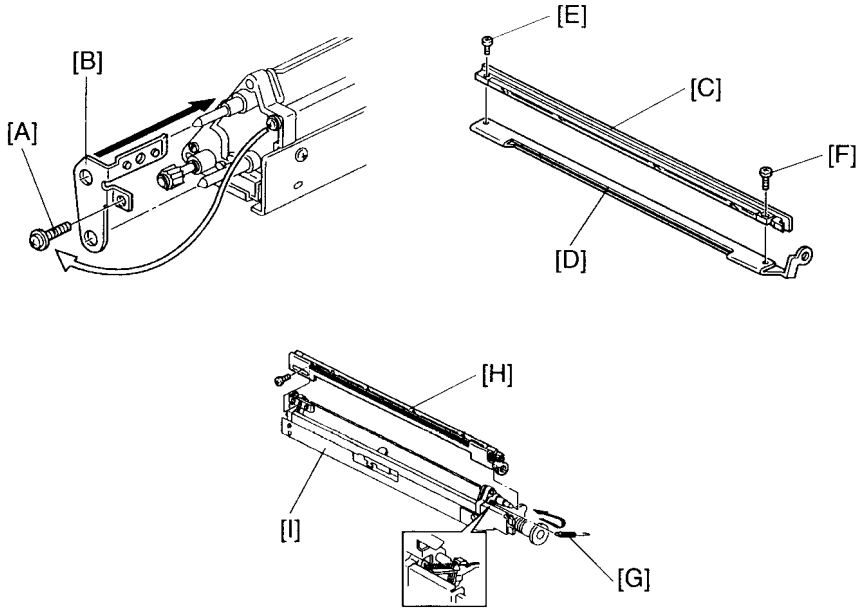


⚠ CAUTION

Turn off the main switch and unplug the machine before starting the following procedure.

1. Open the front doors and remove the toner tank unit [A] (2 screws).
2. Remove the right inner cover [B] (3 screws).
3. Remove the upper rear cover (4 screws).
4. Remove the lower rear cover (4 screws).

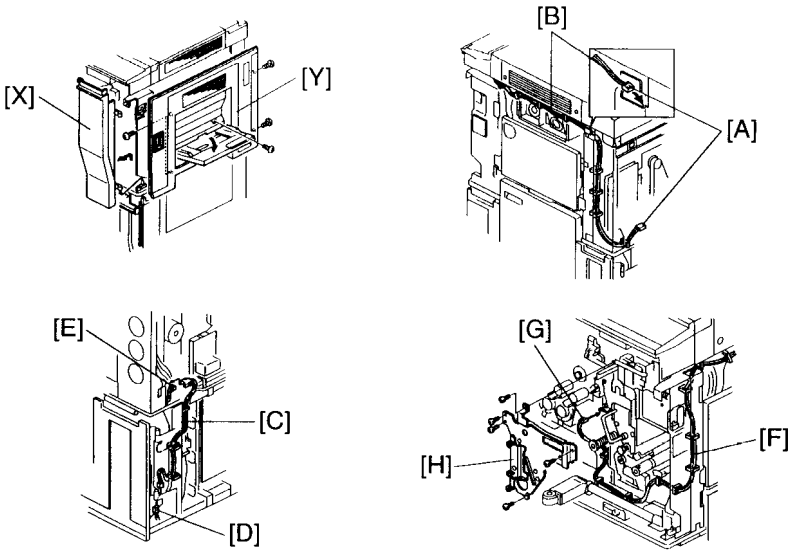
2. Attach the PTL (Pre-Transfer Lamp) to the belt cleaning unit.



1. Lower the toner collection duct (1 hook).
2. Disconnect the three connectors and free them from the three harness clamps.
3. Remove the transfer belt stay (5 screws).
4. Remove the belt cleaning unit by pulling it out.
5. Remove the screw [A] on the rear plate of the unit.
6. Attach the PTL bracket [B] with this screw [A].
7. Attach the PTL (LED array) [C] to the PTL stay [D] (M3x8 [E] ,stepped screw-M3 [F]).
8. Remove the release spring [G].
9. Attach the PTL stay/LED array assembly [H] to the cleaning unit [I] (M4x6 screw).
10. Reset the release spring [G].

    NOTE: Don't set the release spring the wrong way round.

3. Route the PTL harness and attach the belt cleaning unit.



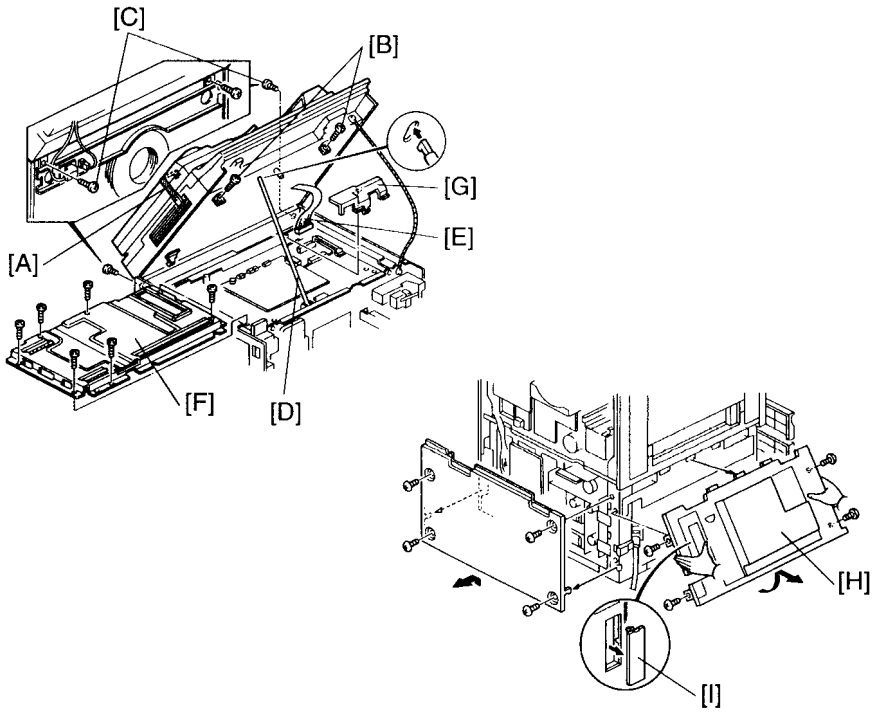
1. The following machines are not equipped with the PTL harness and the PTL relay harness. Therefore perform from the following steps. If the harnesses are already installed, skip to step 6.

Machine Code	A109-17	A109-22	A109-26	A109-27
Serial No.	less than A3514090001	less than 6794090001	less than 3E50940001	less than A3514090383

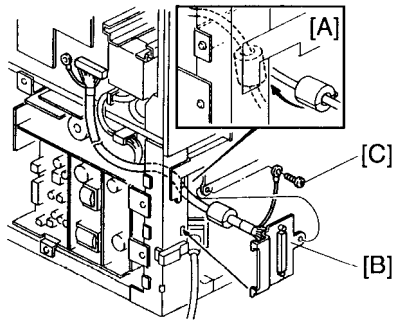
2. Remove the right front door [X] and the upper right cover [Y] (5 screws).
3. Route the white connector end [A] of the PTL harness [B] from the upper rear right side of machine through to the rear as shown in the diagram (8 clamps).
4. Run the PTL relay harness [C] (3 clamps) down the rear side and connect it to the connector [D] and the PTL harness [E].
5. Route the PTL harness [F] through the front side of the machine (8 clamps).
6. Reinstall the belt cleaning unit and connect it to the PTL harness [G].
7. Reinstall the transfer belt stay [H] (5 screws, 3 connectors and 3 clamps).

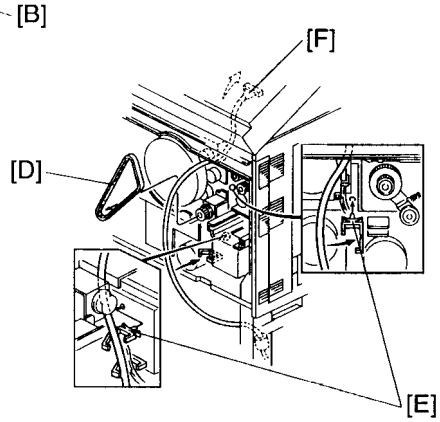
   NOTE: Install the connector of the PTL unit before reattaching the transfer belt stay. Also, disconnect it after removing the transfer belt stay.
8. Reinstall the toner collection duct (1 hook).

4. Install the interface board and harness.



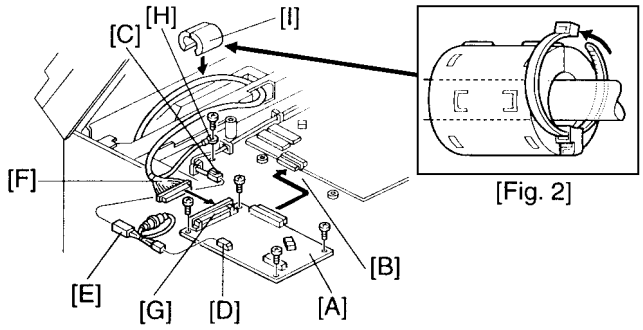
1. If the DJF is equipped on the copier, secure the DJF to the scanner unit with the DJF fixing belt [A] as shown.
   If the Film Projector Unit is installed on the copier, remove the mirror unit.
2. Remove the two fixing screws [B] at the front of the scanner unit.
3. Remove the two fixing screws [C] at the rear of the scanner unit.
4. Open the scanner unit and set the scanner support bar [D] as shown.
5. Disconnect the shielded flat cable [E] and remove the IPU board cover [F] (2 long and 5 short screws).
6. Remove the harness cover [G] from the right rear corner.
7. Remove the lower left cover [H] (4 screws). Then remove the cap [I] from the lower left cover.



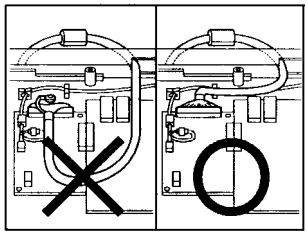


8. Route the harness above the left rail of the 1st tray [A] from the left side to the rear.
9. Place the controller interface harness bracket [B] on the left side frame and secure it with the grounding wire (1 screw) [C].
10. Remove the timing belt [D] and install the two harness clamps [E].
11. Route the harness from the lower to the upper as shown [F].

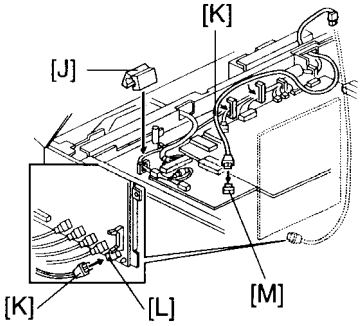
    NOTE: Route the harness behind the charge inlet fan duct.



[Fig. 2]



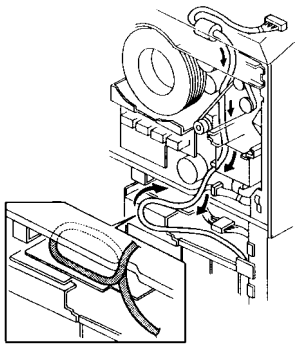
[Fig. 1]



12. Install the controller interface board [A] by connecting it to CN308 [B] of the IPU board (4 screws).
13. Connect the white 2P connector [C] to CN301 [D] of the controller interface board via the fuse harness [E].
14. Connect the controller interface harness [F] to CN303 [G] of the controller interface board. Then secure the grounding wire [H] to the IPU board bracket (1 screw).

    NOTE: 1. Do not route the harness over the board to prevent electromagnetic wave. (See [Fig. 1])
    2. Make sure that the connectors are set properly. Otherwise, the copier might not achieve the ready condition or blank copies might be made.
15. Install the gray ferrite core [I] and the white ferrite core [J] as shown.

    NOTE: Secure the gray ferrite core with the harness band as shown [Fig. 2].
16. Connect the fiber optics cable [K] to CN514 [L] on the main control board and route it to the IPU board area following other fiber cables.
17. Run the fiber optics cable through the harness clamps and connect it to CN304 [M] on the controller interface board.



18. Secure the interface harness with the three harness clamps and reinstall the timing belt as shown.

NOTE: Route the remaining part of the harness along the top of the AC/DC Drive Board as shown. Position the harness near by the rear side plate so that the harness won't touch any moving parts such as timing belts and motors.

5. Replace ROMs and reassemble.

1. Replace the IPU ROM chips, in accordance with the IPU Board P/N.

IPU P/N / IC No.	A1095510	A1095515	A1095519
IC303	V.1.72	A1095517C or later *	Do not replace IC303.
IC309	V.1.72	A1095518C or later *	Do not replace IC309.

***: If the suffix of the copier ROM chips are later than ROM chip P/Ns in the kit, leave the chips as they are.**

2. Replace the main ROM chips in accordance with the following table.

IC509	A1095104M or later *
IC522	A1095106M or later *

***: If the suffix of the copier ROM chips are later than ROM chip P/Ns in the kit, leave the chips as they are.**

3. Re-assemble the machine.

6. Connect to the Fiery and adjust the printer gamma.

1. Connect the Fiery controller to the controller interface connector with the cable provided from EFI.
2. Adjust the γ correction data for printer and check the controller function according to the service manuals.

REVISED ON: MARCH 31, '96

RICOH	**Technical Bulletin**	**No. RTB-015**
SUBJECT: New Type OPC Drum		DATE: January 31, '96 PAGE: 1 of 1
PREPARED BY: N. Kaiya CHECKED BY:	FROM: 2nd Technical Support Section	
CLASSIFICATION: ☐ Action Required ☐ Troubleshooting ☐ Retrofit Information ☐ Revision of service manual ■ Information only ☐ Other		MODEL: DFC - α

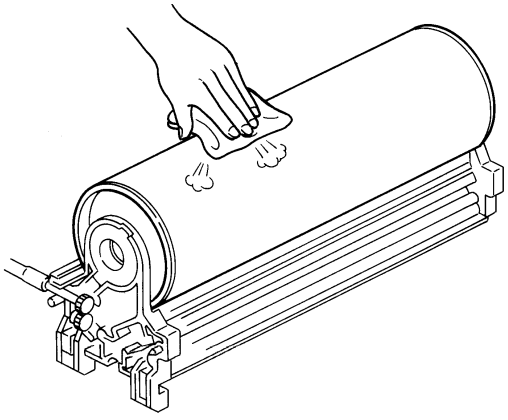
The following is some additional information about the new type OPC drum used for DFC-α. Please refer to RTB No.12 and MB No.33 for this change.

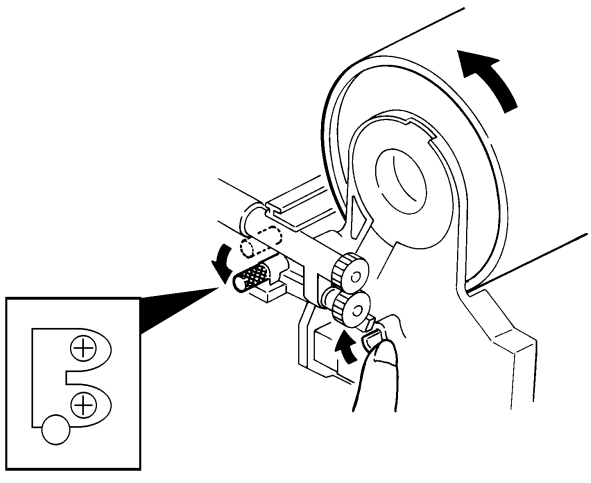
1.Cut-in Serial Numbers
The new type drum has been used in production from the following serial numbers.
A109-17 A3515110158
A109-22 6795110001
A109-26 3E1150001
A109-27 A3515110261
A109-57 S115115001
A109-67 from next production

2.Lot Number
You can distinguish the new type drum by the lot number printed on the flange of the drum. If the second digit of the lot number is C, then the drum is a new type. If it is D, then the drum is an old type.

Example
1D52921234 - Old Type
1C50101234 - New Type

3.Remarks
When installing a new type drum, do not forget to apply setting powder and to rotate the drum counterclockwise 3 times, as explained on page 5-57 of the Service Manual.





RICOH

Technical Bulletin No. RTB-016

SUBJECT: Standardization of Toner and Developer	DATE: Sept. 30, '96 PAGE: 1 of 2
PREPARED BY: N. Kaiya CHECKED BY: T. Inoue	FROM: 1st Field Information Dept. QAC

CLASSIFICATION:

- ☐ Action Required
- ☐ Troubleshooting
- ☐ Retrofit Information
- ☐ Revision of service manual
- ■ Information only
- ☐ Other

MODEL: DFC - α

The toner and the developer for DFC-α have been standardized with those developed for the new product, Lily.

The new toner and the new developer are compatible with the current toner and current developer. A mixture of new and current toner, or mixtures of new toner and current developer or current toner and new developer have no effect on the performance or copy quality.

For the product names of the new toner and developer, please refer to the tables below.

Ricoh

toner	black	RICOH COLOR TONER TYPE F BLACK
	yellow	RICOH COLOR TONER TYPE F YELLOW
	magenta	RICOH COLOR TONER TYPE F MAGENTA
	cyan	RICOH COLOR TONER TYPE F CYAN
developer	black	RICOH COLOR DEVELOPER TYPE F BLACK
	yellow	RICOH COLOR DEVELOPER TYPE F YELLOW
	magenta	RICOH COLOR DEVELOPER TYPE F MAGENTA
	cyan	RICOH COLOR DEVELOPER TYPE F CYAN

Savin

toner	black	SAVIN COLOR TONER BLACK FOR SAVIN SDC206
	yellow	SAVIN COLOR TONER YELLOW FOR SAVIN SDC206
	magenta	SAVIN COLOR TONER MAGENTA FOR SAVIN SDC206
	cyan	SAVIN COLOR TONER CYAN FOR SAVIN SDC206
developer	black	SAVIN COLOR DEVELOPER BLACK FOR SAVIN SDC103/206
	yellow	SAVIN COLOR DEVELOPER YELLOW FOR SAVIN SDC103/206
	magenta	SAVIN COLOR DEVELOPER MAGENTA FOR SAVIN SDC103/206
	cyan	SAVIN COLOR DEVELOPER CYAN FOR SAVIN SDC103/206

Infotec

toner	black	TONER BLACK TYPE XX/1
	yellow	TONER YELLOW TYPE XX/1
	magenta	TONER MAGENTA TYPE XX/1
	cyan	TONER CYAN TYPE XX/1
developer	black	DEVELOPER BLACK TYPE XX
	yellow	DEVELOPER YELLOW TYPE XX
	magenta	DEVELOPER MAGENTA TYPE XX
	cyan	DEVELOPER CYAN TYPE XX

NRG

toner	black	CT107BLK
	yellow	CT107YLW
	magenta	CT107MGT
	cyan	CT107CYN
developer	black	CD107BLK
	yellow	CD107YLW
	magenta	CD107MGT
	cyan	CD107CYN

RICOH

Technical Bulletin No. RTB-017

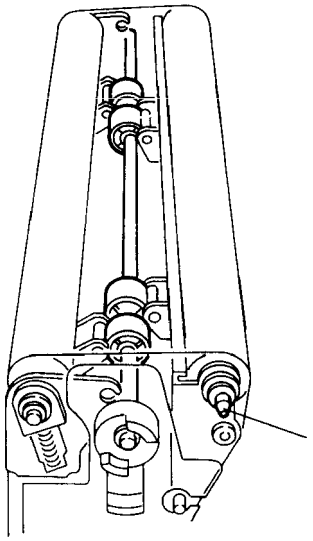
SUBJECT: Grease for Transfer Belt Unit and Transfer Roller Unit	DATE:Oct. 31, '96 PAGE: 1 of 1
PREPARED BY: N. Kaiya CHECKED BY: T. Inoue	FROM: 1st Field Information Dept. QAC

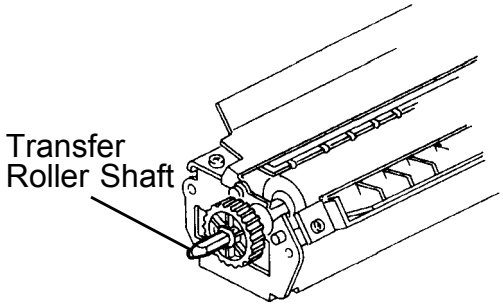
CLASSIFICATION:

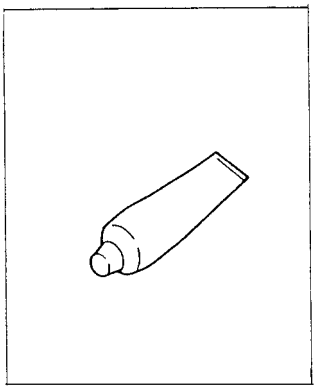
- ☐ Action Required
- ☐ Troubleshooting
- ☐ Retrofit Information
- ■ Revision of service manual
- ☐ Information only
- ☐ Other

MODEL: DFC - α

Please use the KS660 grease (P/N G0049668) for lubricating the end of the bias roller shaft and the end of the transfer roller shaft. The KS660 grease is more conductive than the 40M grease currently recommended.







P/N G004 9668
Grease KS660

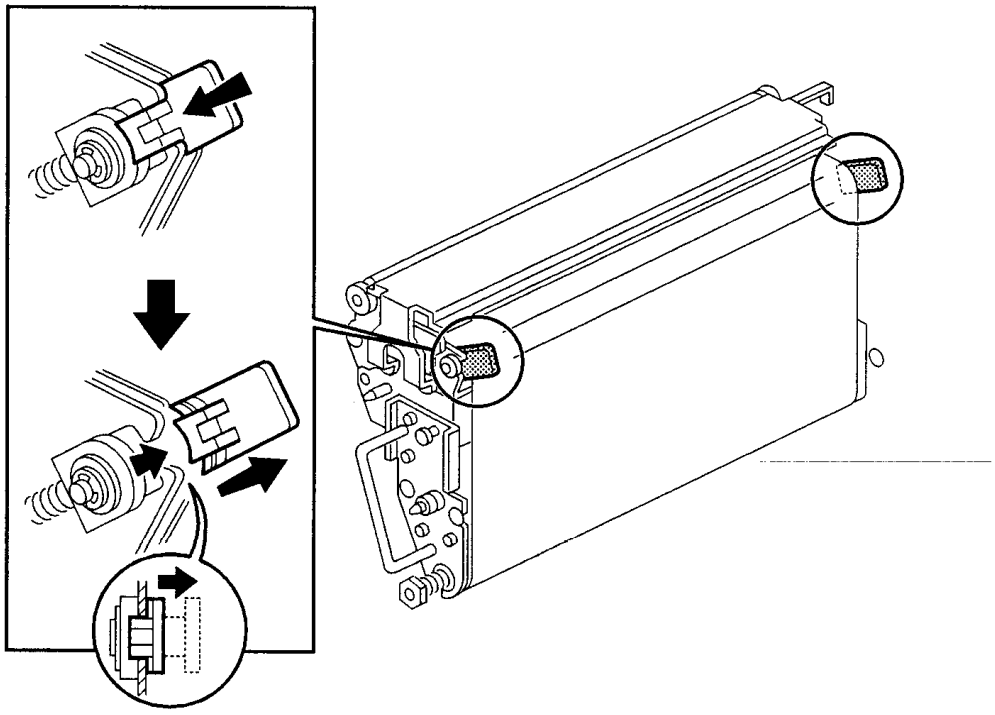
RICOH Technical Bulletin

Model: DFC-α	Date: 31-Mar-97	No: 18	1/2
Subject: Transfer Belt Tension Release Wedge		Prepared by: N. Kaiya	
From: QAC 1st Field Information Dept.		Checked by: T. Inoue	

Classification:			
	☐ Troubleshooting	☐ Part information	☐ Action required
	☐ Mechanical	☐ Electrical	☐ Service manual revision
	☐ Paper path	☐ Transmit/receive	☐ Retrofit information
	☐ Other ( )		

In order to release the tension of the transfer belt during transportation, the Transfer Belt Release Wedges are installed on the front and rear belt tension roller bearing holders. Please do not forget to remove the wedges at machine installation.

To remove the wedge, push the wedge toward the bearing holder and slide it inside slightly.



MODEL NAME	V/ Hz	DESTINATION	CODE	SERIAL NUMBER
Savin SC106	115V / 60Hz	USA, CANADA	A109- 15	50701xxxx
Ricoh NC5006	115V / 60Hz	USA, CANADA	A109- 17	A3517010001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109- 22	6797020001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109- 26	3E5701xxxx
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109- 27	A351701xxxx
Sharp AR- C860	115V / 60Hz	USA, CANADA	A109- 57	S11701xxxx
Sharp AR- C860	230V/ 50Hz	EUROPE	A109- 67	S11701xxxx

Model: DFC-α	Date: 15-May-98	No: 19
Subject: Improvement of toner	Prepared by: N.Kaiya	
From: QAC Field Information Dept.		

Classification:			
	☒ Troubleshooting	☐ Part information	☒ Action required
	☐ Mechanical	☐ Electrical	☐ Service manual revision
	☐ Paper path	☐ Transmit/receive	☐ Retrofit information
	☐ Other ( )		

This RTB explains about the new toner for DFC-α and necessary action to be taken when the toner is switched from the current type to the new type.

1. Purpose of the new toner

The chargeability has been stabilized to reduce toner scattering inside the machine and to reduce image density fluctuation.

2. Necessary action when replacing the developer

With the new toner, chargeability stays constant so automatic Vcnt correction made every 200 scans is no longer necessary. Therefore, when replacing the developer after the toner is switched to the new type, the Vcnt correction must be turned off.

Depending on the type of toner in the toner tank, the following action will be required when replacing the developer. The procedure to switch off the Vcnt correction is explained later in this RTB.

1. When all the toner in the toner tank unit is the new type, turn off the Vcnt correction.
2. When all the toner in the toner tank unit is the old type, do not turn off the Vcnt correction.
3. When there is a mixture of old and new toner in the toner tank, do not turn off the Vcnt correction.
4. When the type of toner in the toner tank unit is unknown, do not turn off the Vcnt correction.

3. Troubleshooting procedure for insufficient ID max (or excessive ID max)

As the old toner in the developer is replaced with the new toner, the history of the Vcnt correction for the old toner remains, so the toner density correction may be slightly

excessive, resulting in toner density slightly less than originally with the old toner. (The opposite may occur if the toner is switched from the new type to the old type.)

In most cases, such changes in image density can be corrected by performing the color balance adjustment or calibrating the printer, but it may result in a service call depending on the customer's requirements.

When the customer calls because of insufficient or excessive ID max, and if it seems to be due to changing the toner type, please use the following procedures.

Insufficient ID max

1. Check the following items.
   1.1. Even if the color balance adjustment or printer calibration is done, the image density remains light, if there is insufficient ID max.
   1.2. Check that the Process Control Self Check is set to PID (SP Special Features page 2 - Process Control Mode Selection), and has been successful. If the self check has not been successful, find and fix the cause.
   1.3. Check that Vt (TD Sensor Output) does not vary greatly from Vref (standard $|Vt - Vref| \leq 0.2V$). If Vt varies greatly from Vref, make copies of a C4 test chart until Vt falls within the standard.
   1.4. Even if IDmax and the Shadow setting in the printer gamma correction are adjusted, the image density remains light if there is insufficient ID max.
2. If Vcnt correction is on, turn it off (refer to the procedure in this RTB).
3. Reduce the current Vref for the colors with low density by 0.35V. (*1)
   (For SP Adjustment page 15, input Vref - 0.35 for the Toner Sensor Target.)
4. After inputting the value, confirm that the setting has been changed by looking at the SP Data Output page 2 on the display. (*2)
5. After the adjustment, watch Vt on the SP Data Output page 2 display and make copies of the C-4 test chart (A3/FC mode, about 10 copies) until Vt stabilizes at $|Vref - Vt| \leq 0.2V$. (*3)
6. If necessary, perform the printer gamma adjustment.

Excessive ID max

1. Check the following items.
   1.1. Even if the color balance adjustment or printer calibration is done, the image density remains dark, if there is excessive ID max.
   1.2. Check that the Process Control Self Check is set to PID (SP Special Features page 2 - Process Control Mode Selection), and has been successful. If the self check has not been successful, find and fix the cause.
   1.3. Check that Vt (TD Sensor Output) does not vary greatly from the Vref. (standard $|Vt - Vref| \leq 0.2V$) If Vt vary greatly from Vref, make copies of a C4 test chart until Vt reaches within the standard.

1.4. Even if IDmax and the Shadow setting in the printer gamma correction are adjusted, the image density remains dark if there is excessive ID max.
2. Increase the current Vref for the colors with high density by 0.35V. (For SP Adjustment P. 15, input Vref + 0.35V for the Toner Sensor Target.) (*1)
3. After inputting the value, confirm that the setting has been changed by looking at the SP Data Output page 2 on the display. (*2)
4. For these colors, make five A3 sky shot copies (ten copies for A4). (*3)
5. After the adjustment, watch Vt on the SP Data Output page 2 display and make copies of the C-4 test chart (A3/FC mode, about 10 copies) until Vt stabilizes at $|Vref - Vt| \leq 0.2V$.
6. Wait 5 minutes, then perform the process control self check.
7. If necessary, perform the printer gamma adjustment.

Note

(*1) In the unusual case that the input value is the same as the Toner Sensor Control Target, please raise or lower the input value by 0.01V. (If the value input is the same as that indicated, then the adjustment is not recognized.)

(*2) The value displayed may be 0.01~0.02 V less than the input value, but this is not a problem. If the Vref value is lower than 2.15V or higher than 2.85V, it will automatically be adjusted to 2.15V (lower level) or 2.85V (higher level) after copies have been made, so this also does not pose a problem.

(*3)The “Add Toner” message may appear on the display even if there is toner in the toner tank. In such a case, do the following procedure.
1. Open the front doors. Push and slide out the toner tank.
2. Turn on the front door safety switch with the switch actuator.
3. Wait until the machine becomes ready.
4. Remove the switch actuator, push back the toner tank, close the front doors, and make the remaining copies.

Remarks
(1) If the machine condition is poor (for example, the process control self check does not succeed or the developer gamma is more than 5), replace the developer and do the steps in section 2 of this RTB ‘Necessary Action for Replacing the Developer’
(2) For machines connected to a controller, perform printer calibration as necessary.

4. How to turn off Vcnt correction

1. Press the Clear Modes key.
2. Enter “143”.

3. Press the Clear/Stop key twice and hold it down for over 3 seconds until the PP mode index appears on the touch panel display.
4. Touch 1 on the display to access SP Adjustment.
5. Touch the Prev. key to open page 23.
6. Select item no.1 by touching the key on the right side of the five-digit number.
7. Press the Clear/Stop key to clear the value of item no.1.
8. Press the Enter key.
9. Confirm that the value of item no.1 is “00000”.
10. Touch the Index and Exit keys to exit the PP Mode.

Remarks

To prevent malfunction of the copier, do not change any other settings in PP mode.

5. Name of the new toner

Brand	Naming
Ricoh	Ricoh Color Toner Type J Black
	Ricoh Color Toner Type J Yellow
	Ricoh Color Toner Type J Magenta
	Ricoh Color Toner Type J Cyan
Savin	SVN SC106/SDC206 BLK Type J
	SVN SC106/SDC206 YLW Type J
	SVN SC106/SDC206 MAG Type J
	SVN SC106/SDC206 CYNType J
Nashutec	Nashuatec CT112 BLK
	Nashuatec CT112 YLW
	Nashuatec CT112 MGT
	Nashuatec CT112 CYN
Rex Rotary	Rex Rotary CT112 BLK
	Rex Rotary CT112 YLW
	Rex Rotary CT112 MGT
	Rex Rotary CT112 CYN
Gestetner	Gestetner CT112 BLK
	Gestetner CT112 YLW
	Gestetner CT112 MGT
	Gestetner CT112 CYN
Infotec	Infotec Type XX/3 Blk
	Infotec Type XX/3 Yel
	Infotec Type XX/3 Mag
	Infotec Type XX/3 Cyn

RICOH NC5006

PARTS CATALOG

First Edition January 1996

PARTS CATALOG

INTRODUCTION

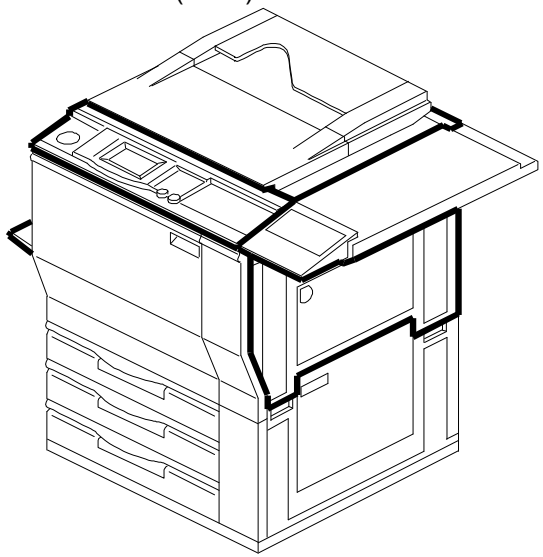
This chapter instructs you the numbers and names of parts on this machine.

INDEX to PARTS CATALOG

NC5006 (A109)
DF60 (A376)
CS210 (A511)
Sorter Adapter Type J (A527)
RE8 (A997)
SPU2 (A998)
Holder Type A (A702)

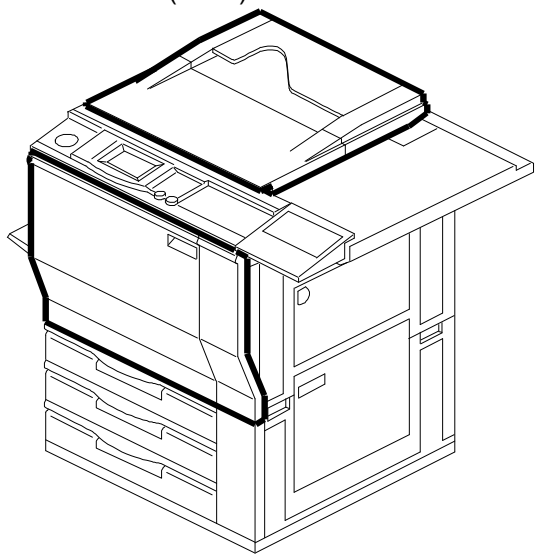
Location of unit

1. EXTERIOR 1 (A109)



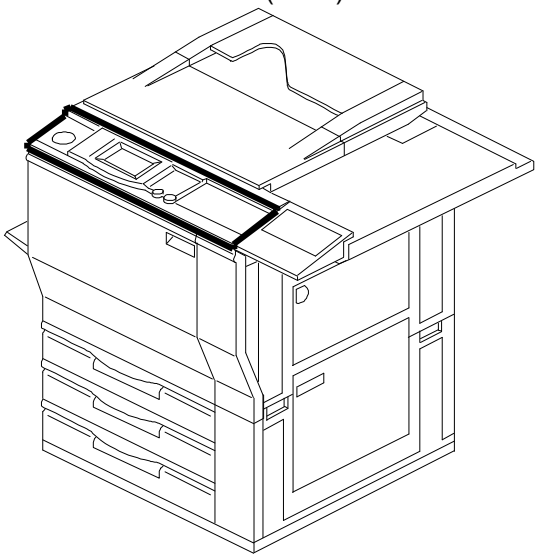
See Page 12

2. EXTERIOR 2 (A109)



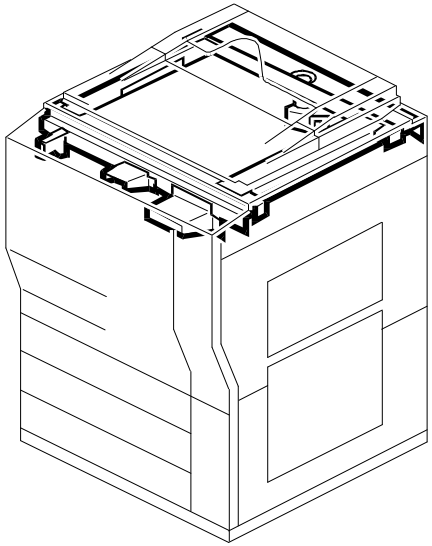
See Page 14

3. OPERATION PANEL (A109)



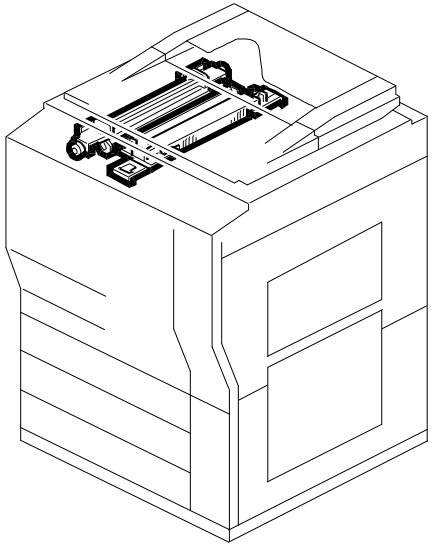
See Page 16

4. OPTICS SECTION 1 (A109)



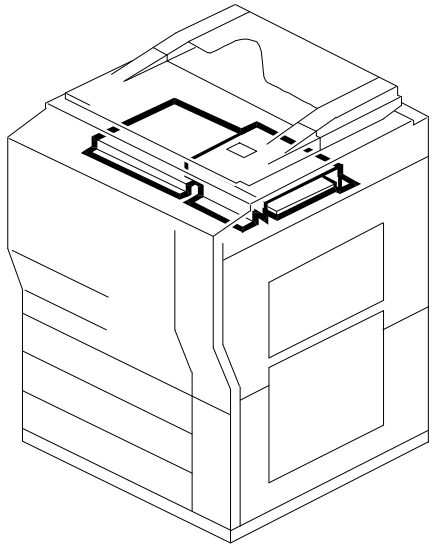
See Page 18

5. OPTICS SECTION 2 (A109)



See Page 20

6. OPTICS SECTION 3 (A109)



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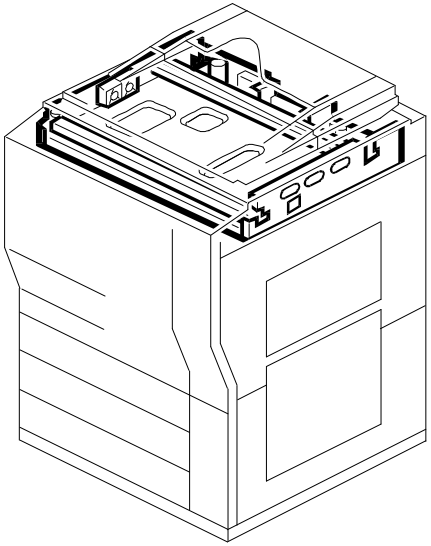
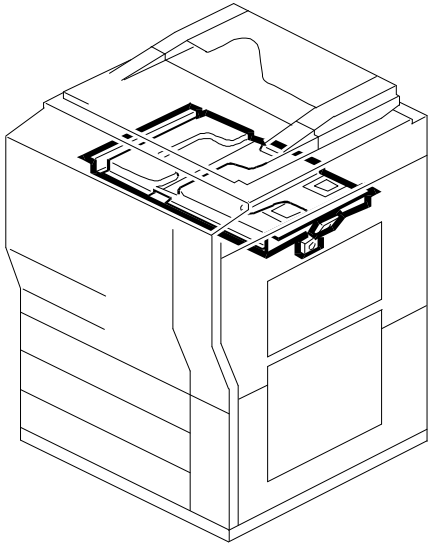
Location of unit

7. OPTICS SECTION 4 (A109)



See Page 24

8. PRINTER SECTION 1 (A109)



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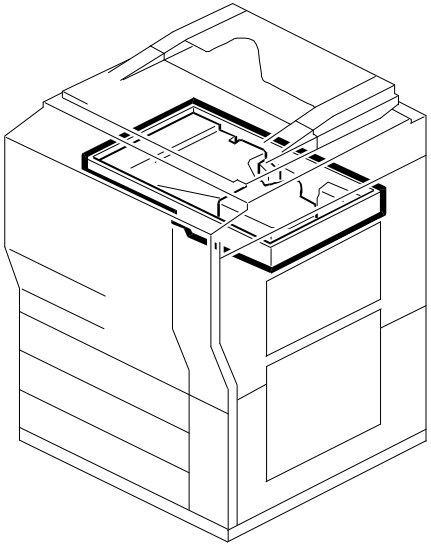
9. PRINTER SECTION 2 (A109)



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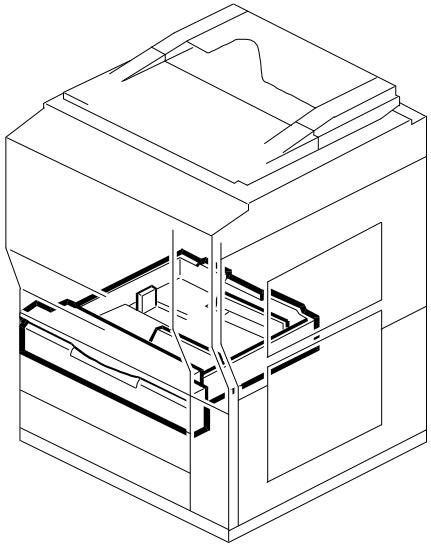
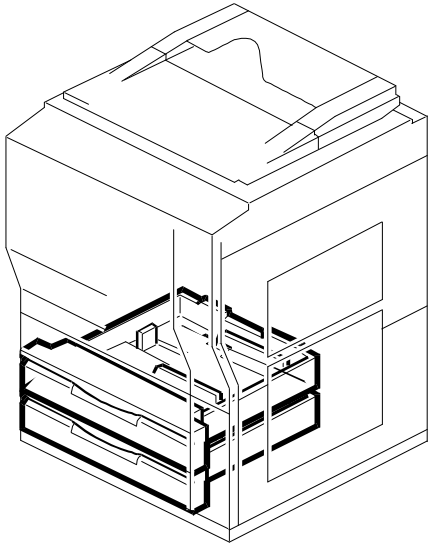
10. 1ST PAPER FEED TRAY (A109)



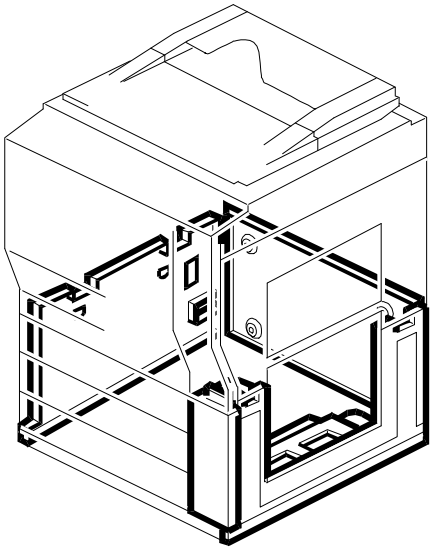
See Page 30

11. 2ND AND 3RD PAPER FEED TRAY (A109)



See Page 32

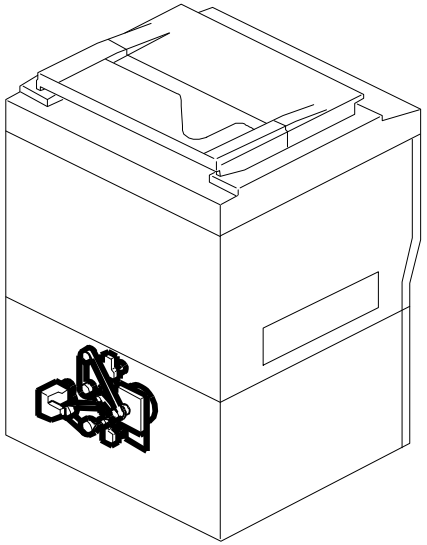
12. PAPER SUPPLY UNIT 1 (A109)



See Page 34

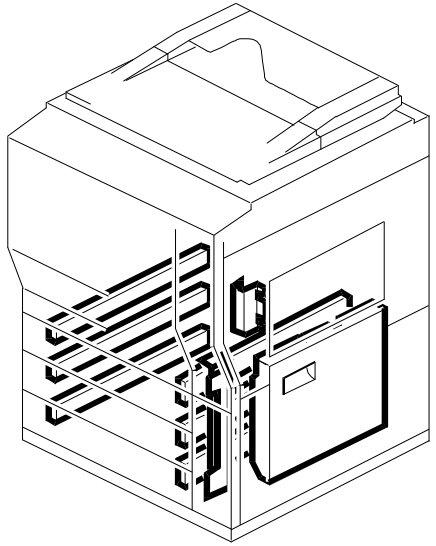
Location of unit

13. PAPER SUPPLY UNIT 2 (A109)



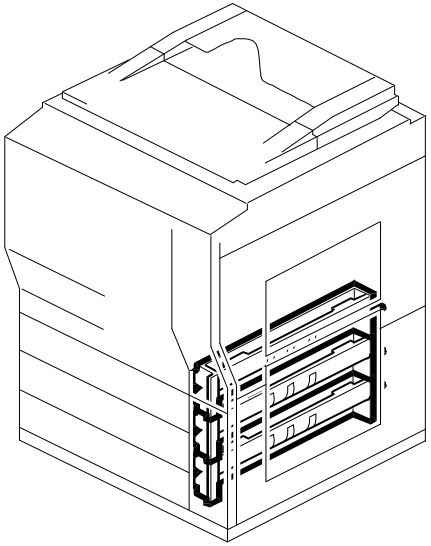
See Page 36

14. PAPER SUPPLY UNIT 3 (A109)



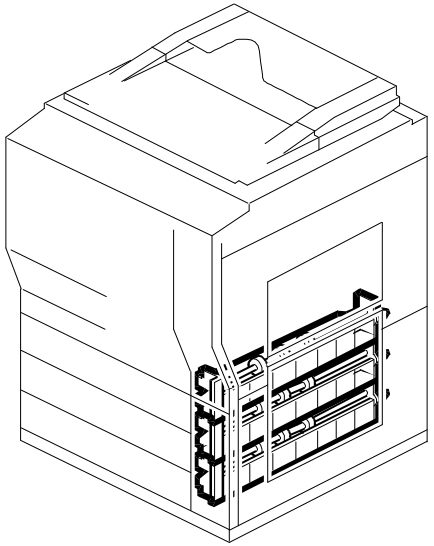
See Page 38

15. PAPER FEED SECTION 1 (A109)



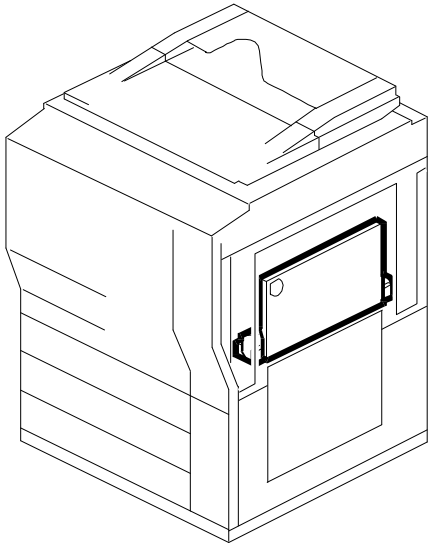
See Page 40

16. PAPER FEED SECTION 2 (A109)



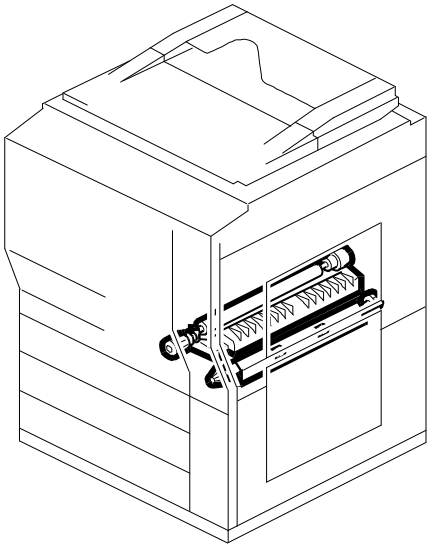
See Page 42

17. BY-PASS FEED TABLE (A109)



See Page 44

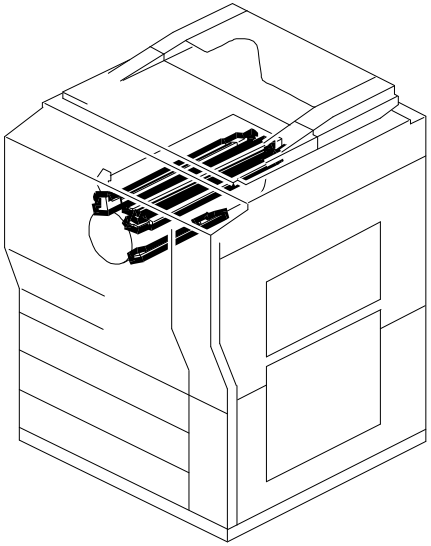
18. PAPER REGISTRATION (A109)



See Page 46

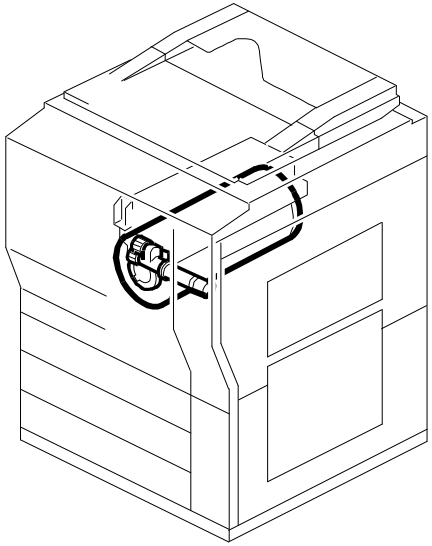
Location of unit

19. AROUND THE DRUM (A109)



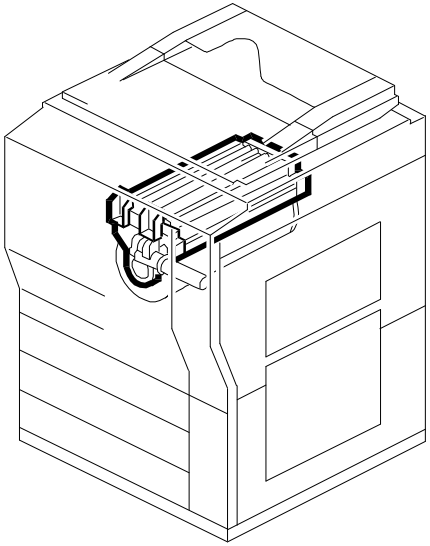
See Page 48

20. DRUM UNIT 1 (A109)



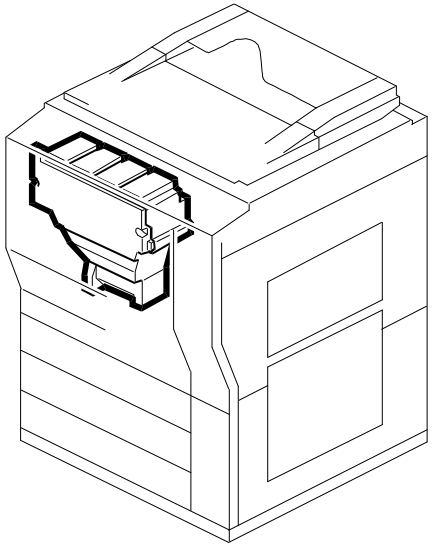
See Page 50

21. DRUM UNIT 2 (A109)



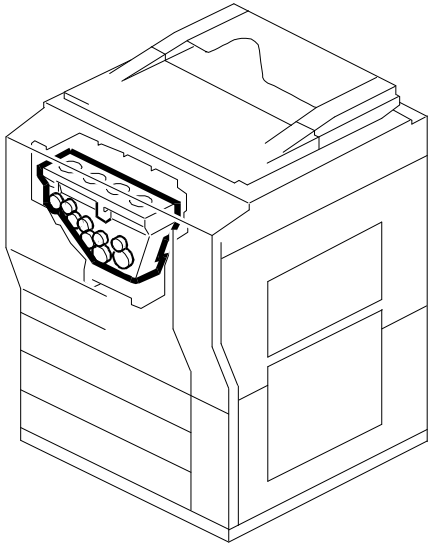
See Page 52

22. TONER TANK UNIT 1 (A109)



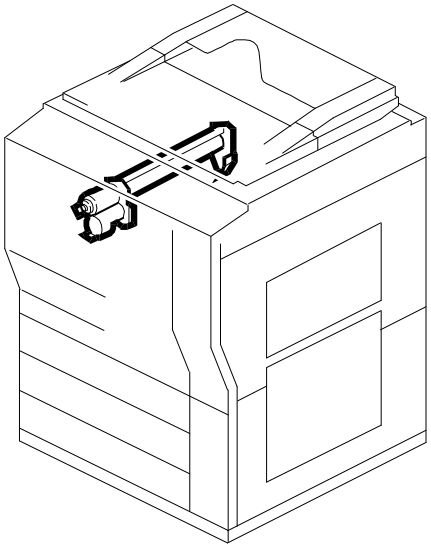
See Page 54

23. TONER TANK UNIT 2 (A109)



See Page 56

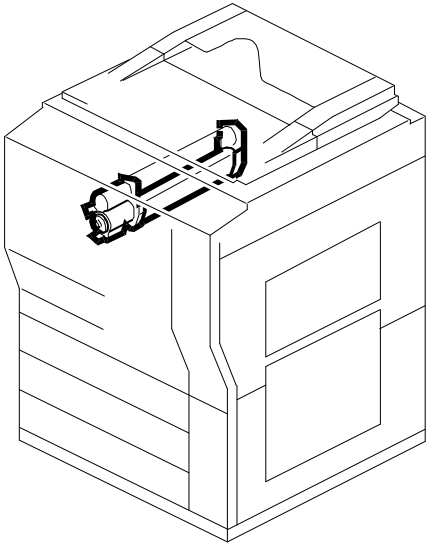
24. DEVELOPMENT UNIT - BLACK (A109)



See Page 58

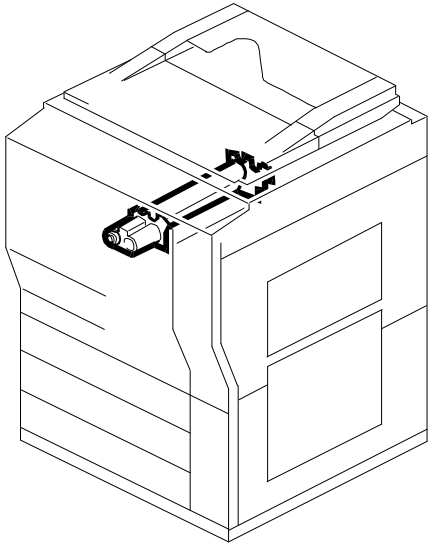
Location of unit

25. DEVELOPMENT UNIT - CYAN (A109)



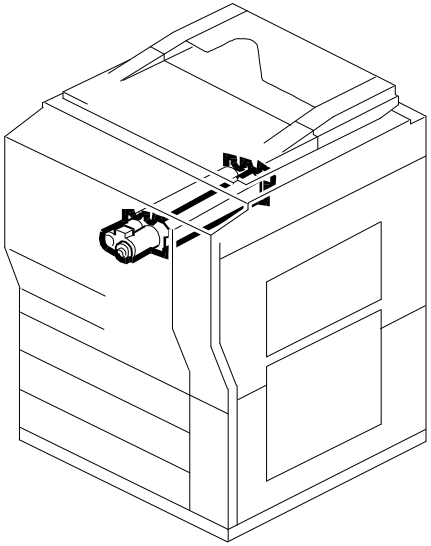
See Page 60

26. DEVELOPMENT UNIT - MAGENTA (A109)



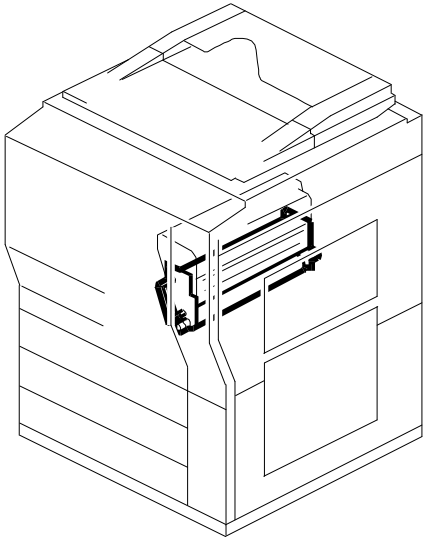
See Page 62

27. DEVELOPMENT UNIT - YELLOW (A109)



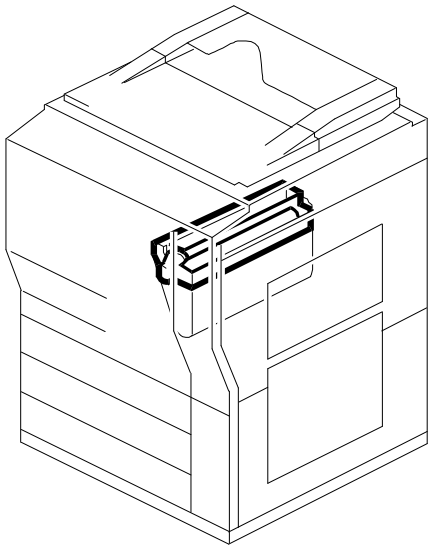
See Page 64

28. TRANSFER BELT UNIT 1 (A109)



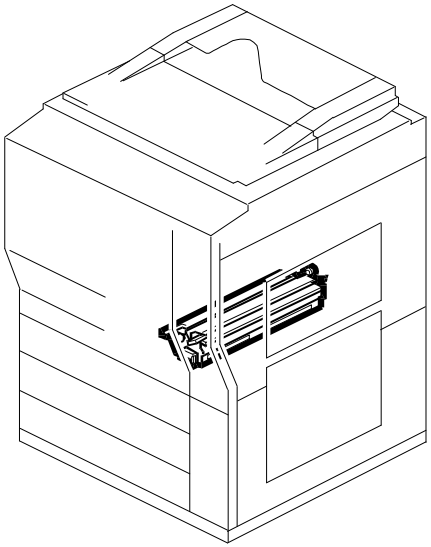
See Page 66

29. TRANSFER BELT UNIT 2 (A109)



See Page 68

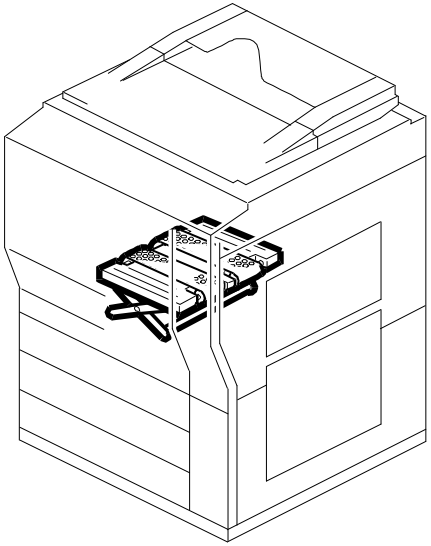
30. TRANSFER ROLLER UNIT (A109)



See Page 70

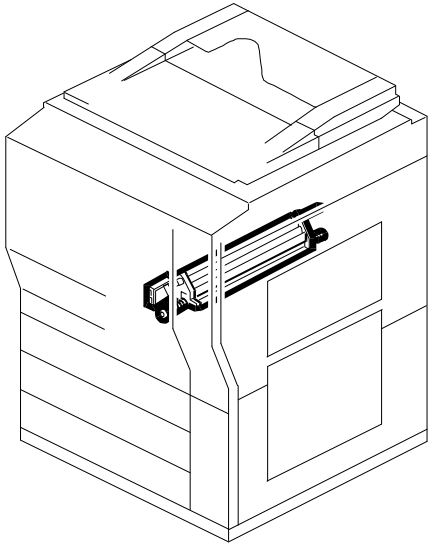
Location of unit

31. TRANSPORT UNIT (A109)



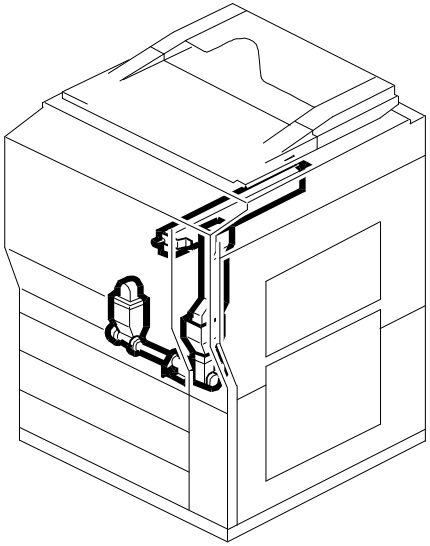
See Page 72

32. BELT CLEANING UNIT (A109)



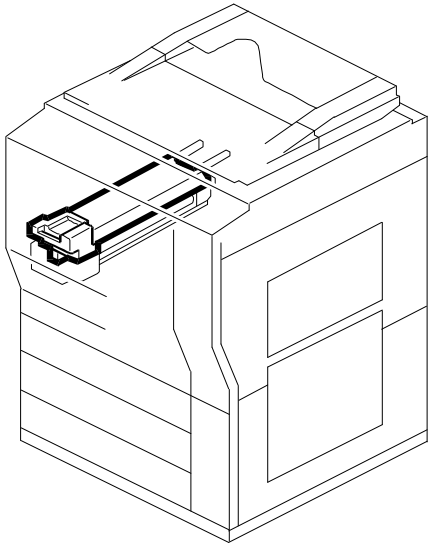
See Page 74

33. TONER COLLECTION SECTION (A109)



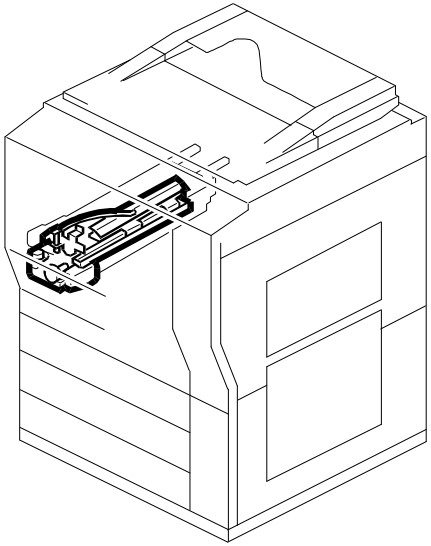
See Page 76

34. FUSING UNIT 1 (A109)



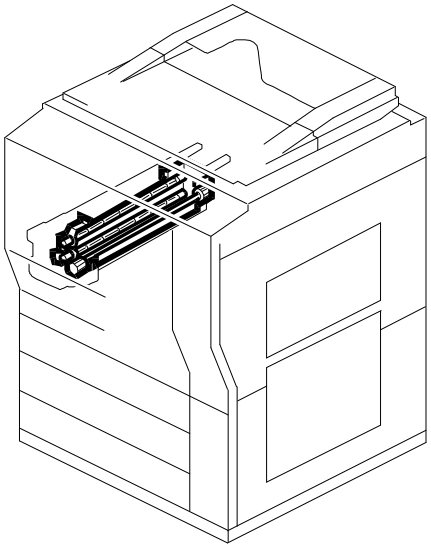
See Page 78

35. FUSING UNIT 2 (A109)



See Page 80

36. FUSING UNIT 3 (A109)



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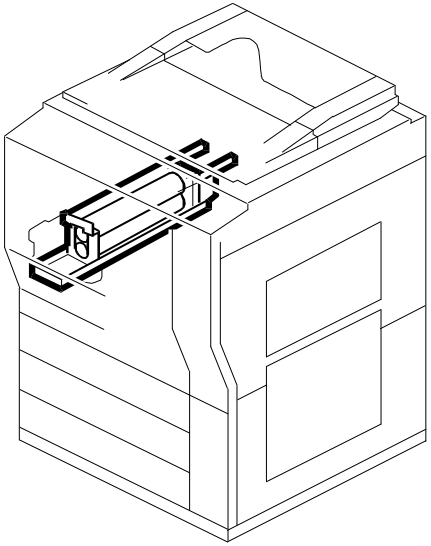
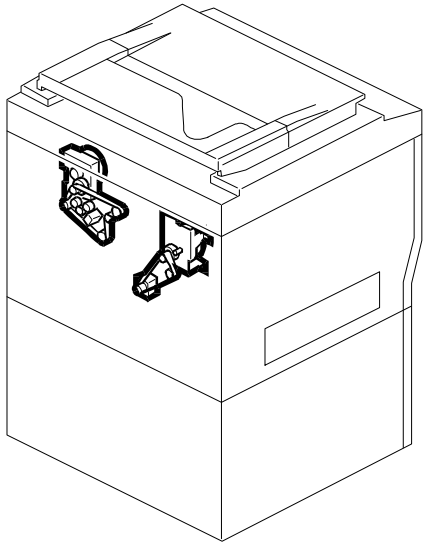
Location of unit

37. FUSING UNIT 4 (A109)



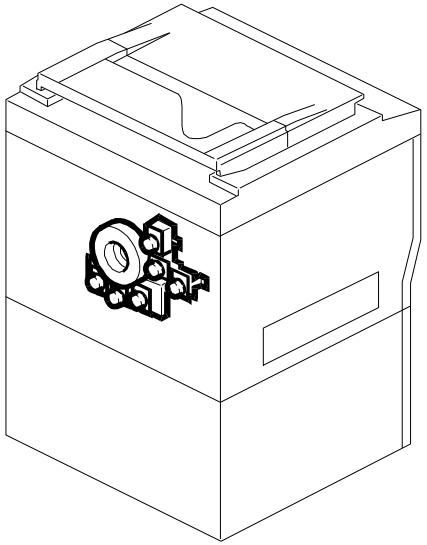
See Page 84

38. DRIVE SECTION 1 (A109)



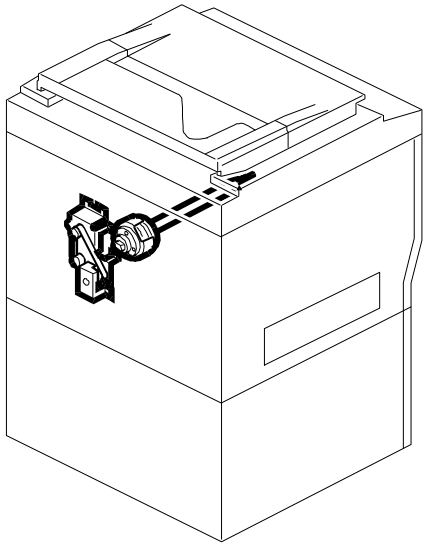
See Page 86

39. DRIVE SECTION 2 (A109)



See Page 88

40. DRIVE SECTION 3 (A109)



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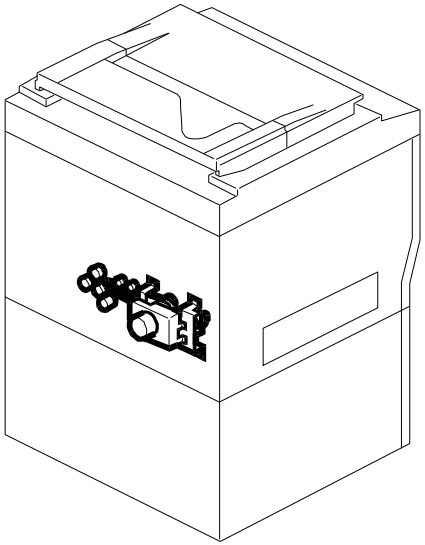
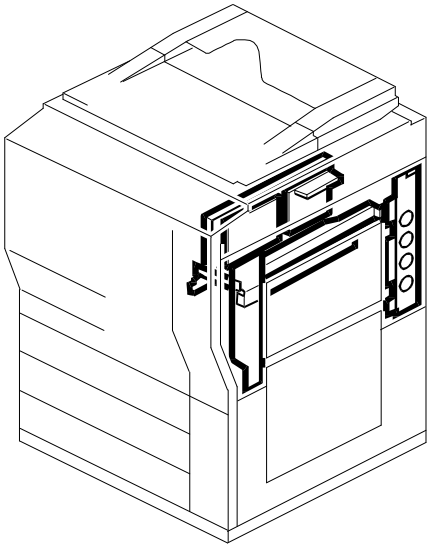
41. DRIVE SECTION 4 (A109)



See Page 92

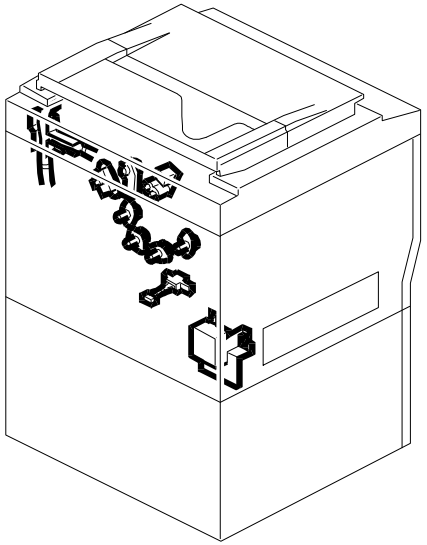
42. ELECTRICAL SECTION 1 (A109)



See Page 94

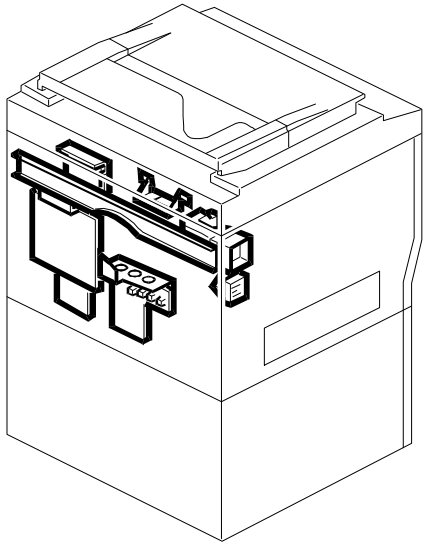
Location of unit

43. ELECTRICAL SECTION 2 (A109)



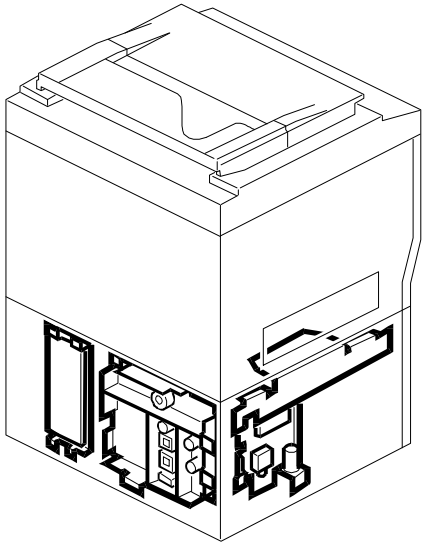
See Page 96

44. ELECTRICAL SECTION 3 (A109)



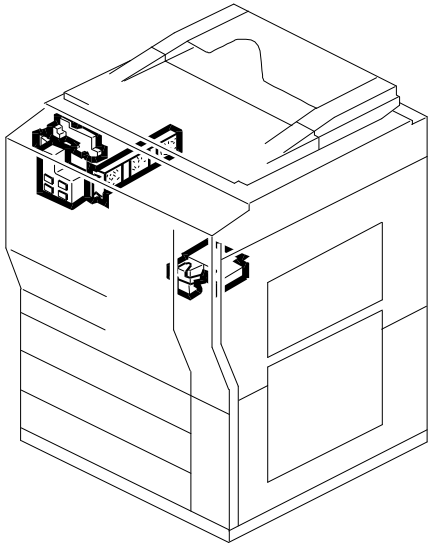
See Page 98

45. ELECTRICAL SECTION 4 (A109)



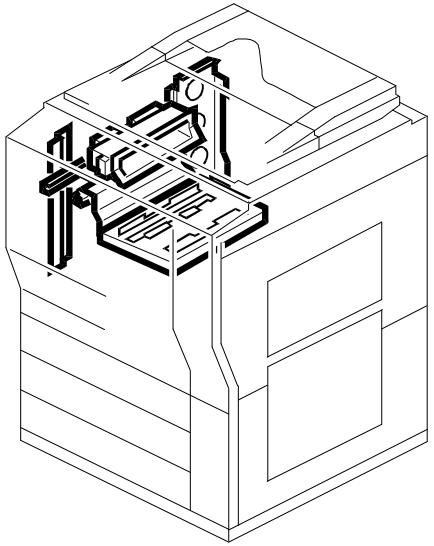
See Page100

46. FRAME SECTION 1 (A109)



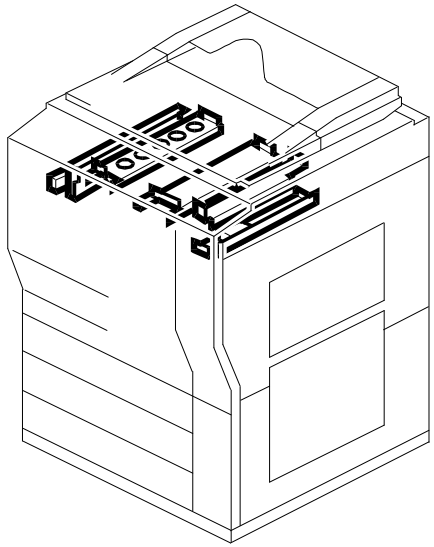
See Page102

47. FRAME SECTION 2 (A109)

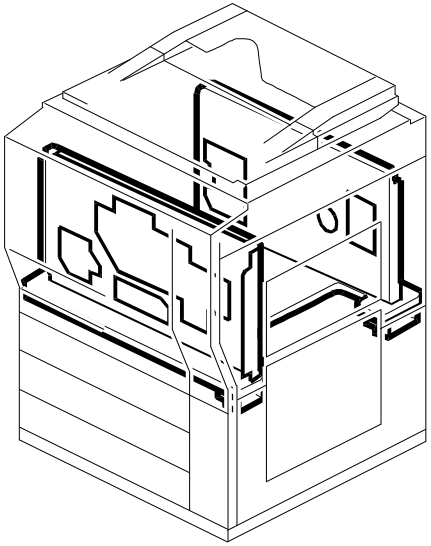


See Page104

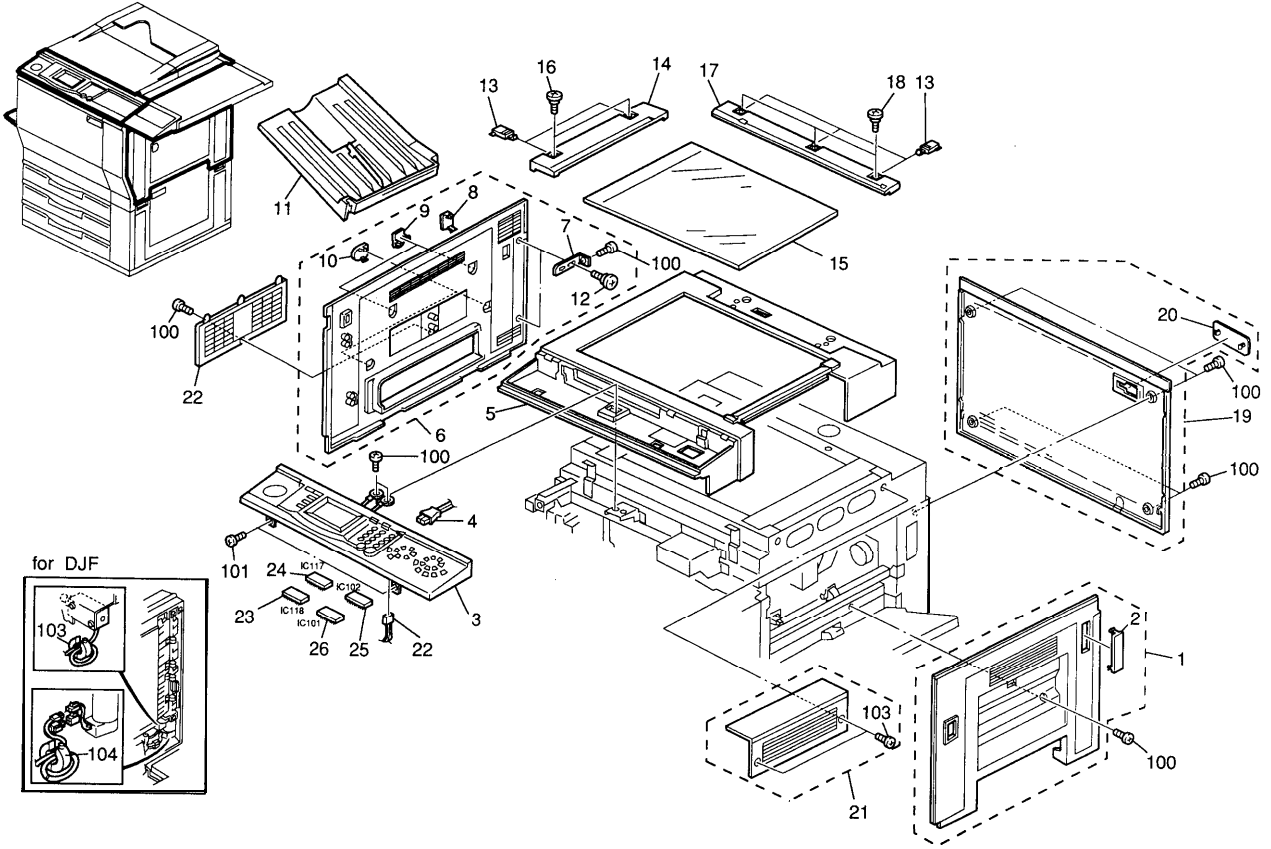
48. FRAME SECTION 3 (A109)



See Page106

49. FRAME SECTION 4 (A109)  See Page108		

1. EXTERIOR 1 (A109)

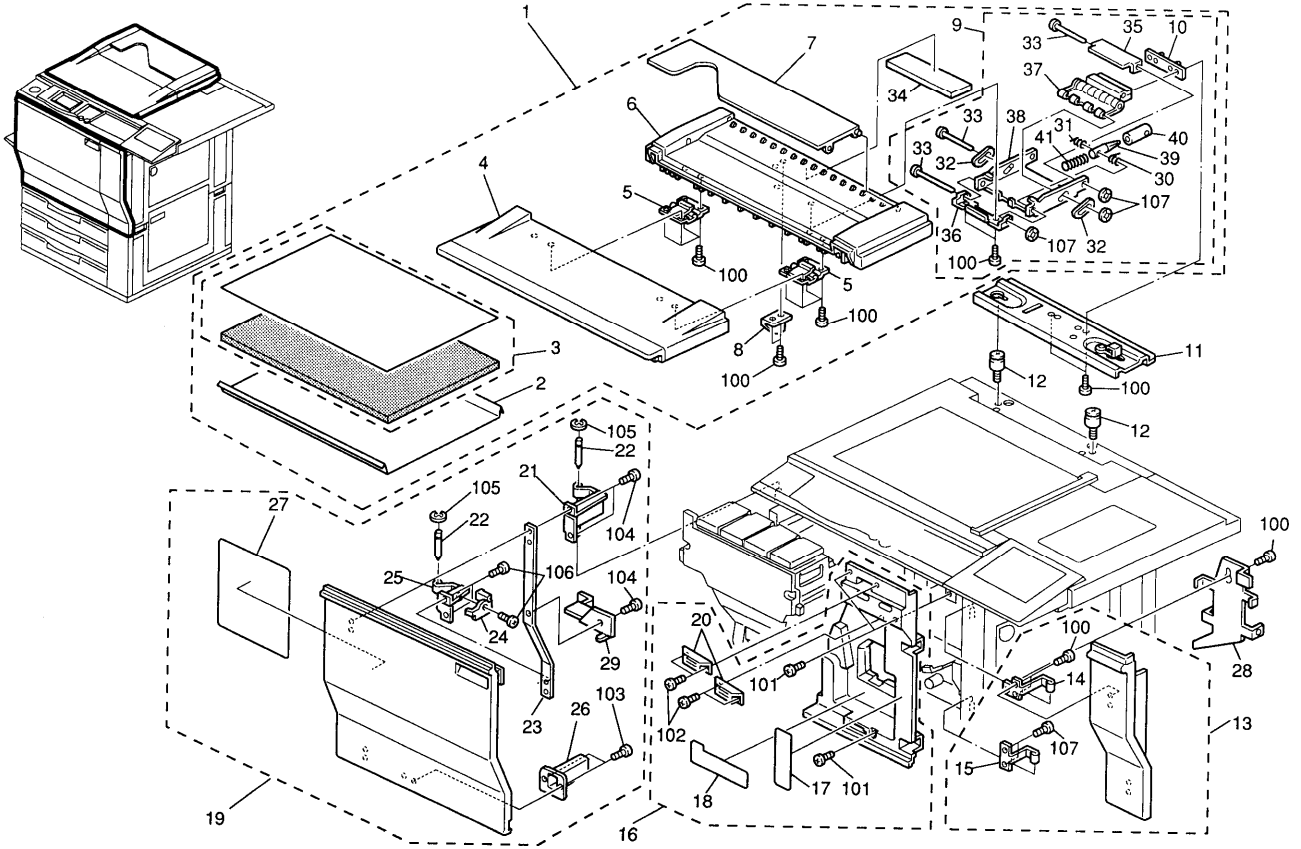


1. EXTERIOR 1 **(A109)**

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A109 1265	Right Cover	1
2	A109 1267	Right Cover Cap	2
3	A109 7065	Operation Panel Ass'y -LT	1
3	A1097066	Operation Panel Ass'y -A4	1
4	AW03 0034	Optics Fiber Cable -1400mm	1
5	A109 7001	Top Cover	1
6	A109 1273	Left Cover	1
7	A109 1276	Left Cover Bracket	2
8	A024 1368	Sorter Cap -Left Cover	1
9	A006 1329	Cap Left Cover	2
10	A006 1328	Small Cap	2
11	A1094300	Copy Tray	1
12	A1094775	Stepped Screw - M5	1
13	A049 1964	Cap-Scale	5
14	AC042098	Left Scale - LT	1
14	AC042073	Left Scale - A4	1
15	A1091911	Exposure Glass Ass'y	1
17	A1097821	Rear Scale-LT	1
17	A109 1901	Rear Scale-A4	1
18	AA140065	Stepped Screw - M3x6	5
19	A1091320	Rear Cover	1
20	A1091322	DF Connector Cap	1
21	A1091256	Upper Righht Cover	1
22	A1091277	Left Cover Louver	1
23	A1095549	IC - 4MX16150NS	1
24	A1095546	IC - 2MX8150NS	1
25	A1095547	IC - 4MX16150NS	1
26	A1095548	IC - 4MX16150NS	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0344 0060F	Philips Truss Head Screw - M4x6	
101	0314 0060B	Philips Pan Head Screw - M4x6	
102	0344 0080F	Philips Truss Head Screw - M4x8	
103	16070623	Ferrite Core - Small	
104	16070638	Ferrite Core - Large	

2. EXTERIOR 2 (AI09)

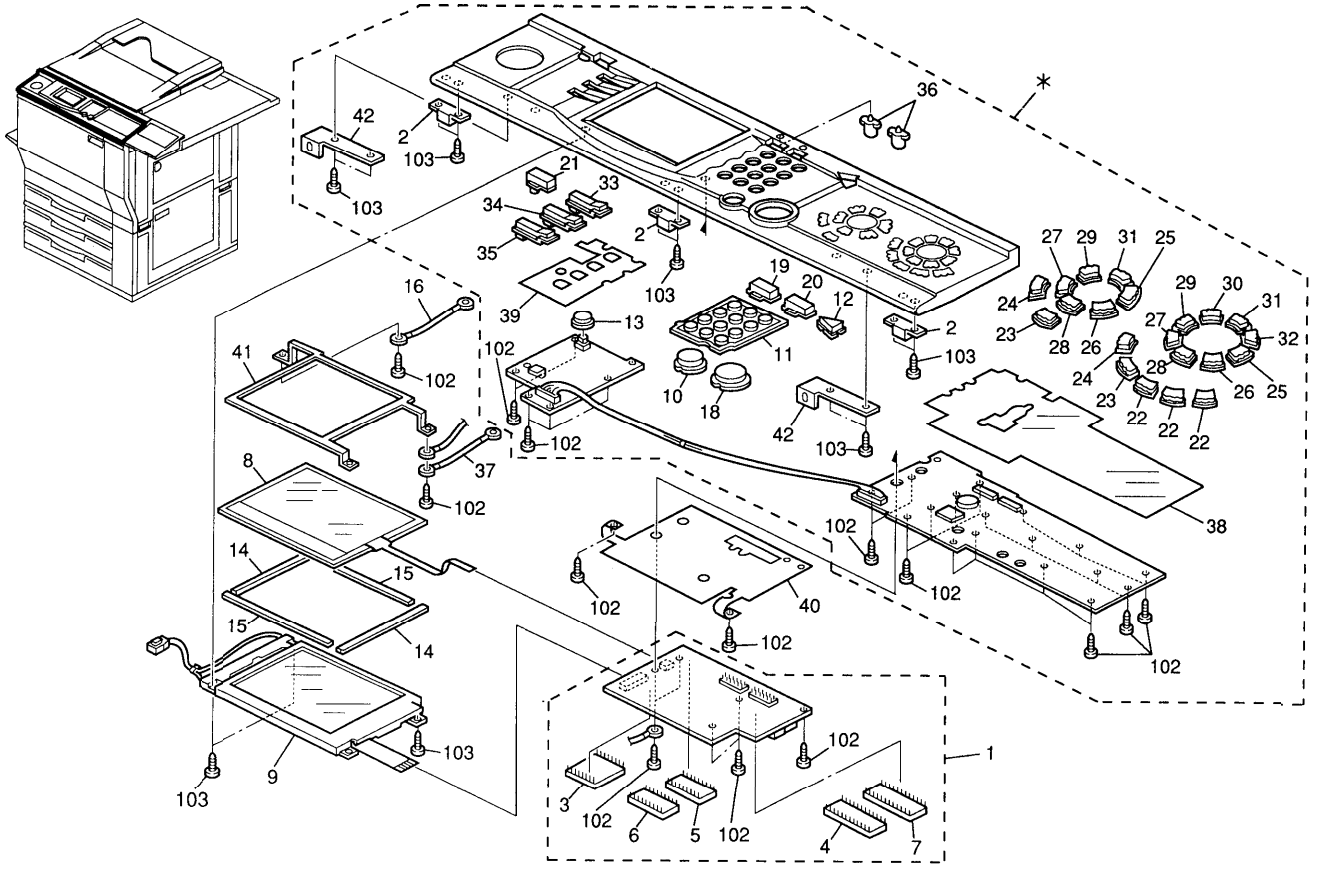


2. EXTERIOR 2 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A100 1330	Platen Cover	1
2	A406 9505	Platen Cover Sheet -10 Sheet/l Set	1
3	AA162053	Platen Cover Pad	1
4	A100 1321	Front Platen Cover	1
5	A053 1957	Flex Hinge - Platen Cover	2
6	A100 1322	Rear Platen Cover	1
7	A100 1323	Original Holder	1
8	A100 1324	Positioning Sensor Shutter	1
9	A1001310	Platen Cover Hinge Ass'y	1
10	A100 1325	Hinge Spacer	1
11	A095 1394	Mounting Bracket - Platen Cover	1
12	52151667	Platen Cover Stud	2
13	A109 7021	Right Door	1
14	A109 1290	Right Upper Door Hinge	1
15	A109 1291	Right Lower Door Hinge	1
16	A109 1374	Right Inner Cover	1
17	A109 1553	Decal - Misfeed Removal B	1
18	A109 1552	Decal - Misfeed Removal A	1
19	A109 1301	Left Door	1
20	AG07 0004	Magnetic Catch	2
21	A1091307	Left Upper Door Hinge	1
22	AA14 5180	Pin - Hinge	2
23	A1091306	Left Door Hinge Plate	1
24	A1094776	Hinge Support Plate	1
25	A1091308	Left Lower Door Hinge	1
26	A1091309	Transport Lever Stopper	1
27	A109 1554	Decal - Misfeed Removal D	1
28	A1091135	Safety Switch Actuator	1
29	A1091310	Fusing Lever Stopper	1
30	52152843	Left Spring - Platen Cover	1
31	52152842	Right Spring - Platen Cover	1
32	52152844	Slide Supporter	2
33	52152840	Pin-4 x115mm	3
34	52152838	Rubber Magnet	1
35	52152845	Plate - Magnet	1

ndex No.	Parl No.	Description	Q'ty Per Assembly
36	52152846	Platen Base	1
37	52152847	Base Holder	1
38	A069 1972	Arm Holder	1
39	52152837	Shaft 7 x 40 mm	1
40	52152836	Sleeve -8 x 34 mm	1
41	A100 1311	Balancer Spring	1
100	0414 0142W	Tapping Screw - M4x14	
101	0344 0060F	Philips Truss Head Screw - M4x6	
102	0434 0102W	Tapping Screw - M4x10	
103	0344 0080F	Philips Truss Head Screw - M4x8	
104	03540100W	Philips Pan Head Screw - M4x10	
105	0720 0030E	Retaining Ring - M3	
106	03140050W	Philips Pan Head Screw - M4x5	
107	08050083	Retaining Ring - M4	

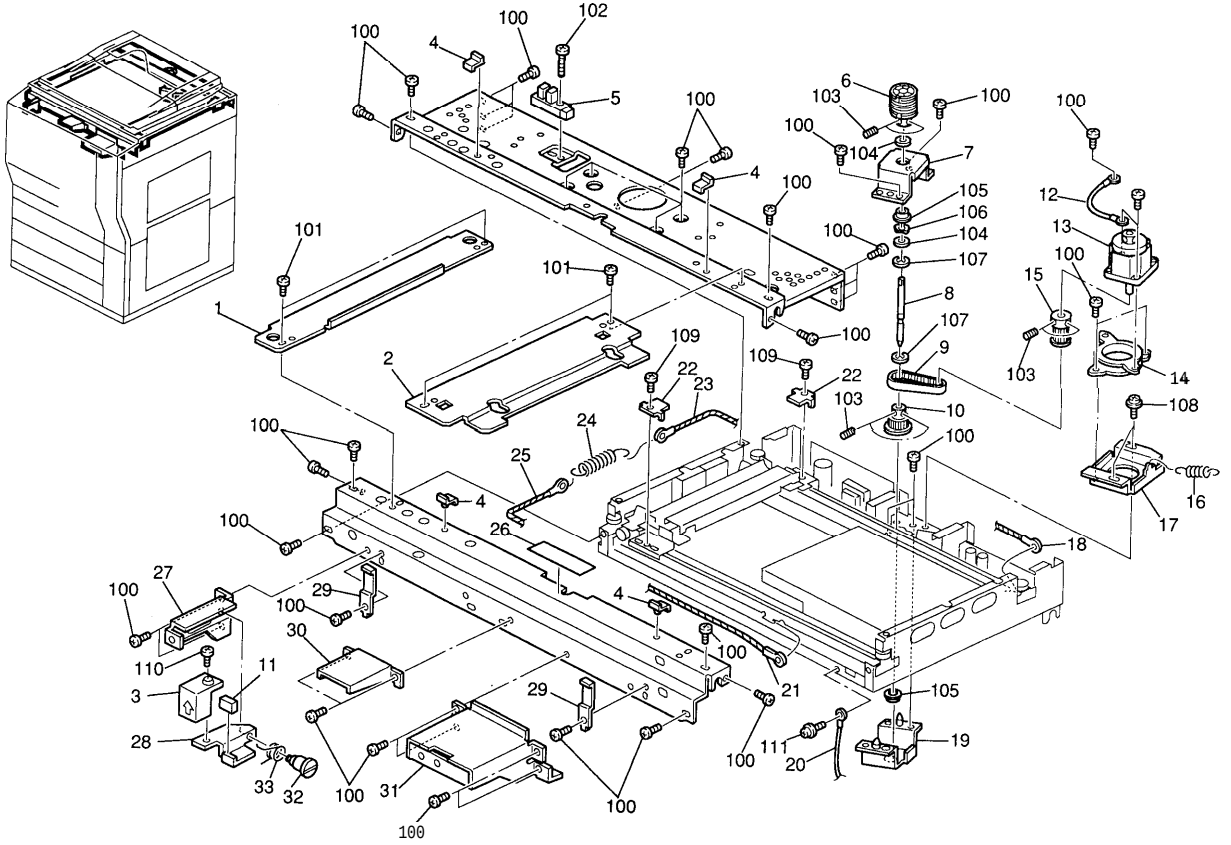
3. OPERATION PANEL (A109)



3. OPERATION PANEL (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
*	A1097065	Operation PanelAss'y - LT	1
*	A1097066	Operation PanelAss'y - A4	1
1	A1095541	Operation Panel Board - LT	1
1	A1095661	Operation Panel Board - A4	1
3	AY20 0002	IC - C5C202	1
4	A1095548	IC - 4MX16150NS (English - LT)	1
5	A1095549	IC - 4MX16150NS (English - LT)	1
6	A109 5546	IC - 2MX8150NS (English - LT)	1
7	A1095547	IC - 4MX16150NS (English - LT)	1
8	AW50 0016	Touch Panel	1
9	AX30 0002	LCD Display	1
10	A096 1492	Keytop - C/S	1
11	A096 1493	Keytop - Set12	1
12	A096 1494	Keytop - Interrupt	1
13	A096 1497	LCD Display Dial	1
14	A096 1509	Cushion -1	2
15	A096 1510	Cushion -2	2
16	A096 1512	Grounding Harness -2	1
17	A096 1513	LCD Display Sheet	1
18	A109 1455	Key Top - Start	1
19	A1091456	Key Top - Clear Modes - LT	1
19	A1097074	Key Top - Clear Modes - A4	1
20	A109 1457	Key Top - Memory Call	1
21	A1091458	Key Top - Color Adjust/memory	1
22	A109 1459	Key Top - User Color - LT	3
22	A1097080	Key Top - User Color 1- A4	1
22	A1097081	Key Top - User Color 2- A4	1
22	A1097082	Key Top - User Color 3- A4	1
23	A109 1460	Key Top - White	2
24	A109 1461	Key Top - Black	2
25	A1091462	Key Top - Red	2
26	A1091463	Key Top - Magenta	2
27	A109 1464	Key Top - Blue	2
28	A109 1465	Key Top - Cyan	2
29	A109 1466	Key Top - Green	2
30	A109 1467	Key Top - Light Green	1
31	A109 1468	Key Top - Yellow	2
32	A1091469	Key Top - Orange	1
33	A109 1488	Key Top - Program	1
34	A109 1472	Key Top - Option	1
35	A109 1473	Key Top - Area Marker	1
36	A109 1474	Lens Ass'y	2
37	A109 1480	Grounding Wire	2
38	A109 1481	Large Shielding Sheet	1
39	A109 1482	Small Shielding Sheet	1
40	A109 1483	Grounding Sheet	1
41	A109 1484	Grounding Plate - LCD	1
42	A109 1486	Operation Panel Bracket	2
43	A109 1487	Operation Panel Hook	3
101	0433 0082B	Tapping Screw - M3x8	
102	0314 0060B	Philips Pan Head Screw - M4x6	
103	0344 0060F	Philips Truss Head Screw - M4x6	

4. OPTICS SECTION 1 (A109)

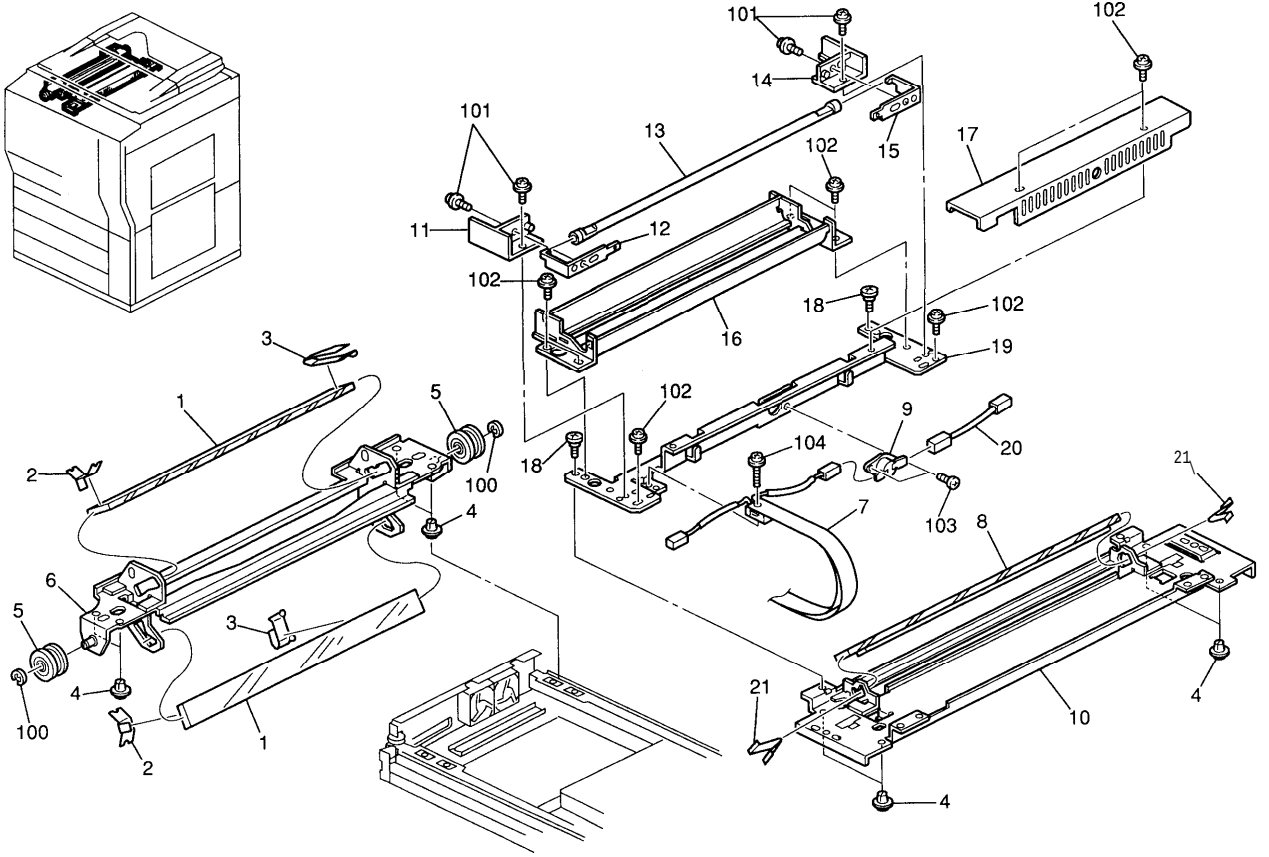


4. OPTICS SECTION 1 **(A109)**

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A109 1877	Scale Bracket	1
2	A109 1878	Right Stay	1
3	A1093461	Stopper Lever - Toner Tank	1
4	A069 1882	Exposure Glass Holder	4
5	AW02 0067	Photointerruptor - EE-SX4119-PI 5	1
6	A048 1870	Scanner Motor Pulley	1
7	A109 1833	Upper Cover - Scanner Drive	1
8	AA140526	Drive Shaft	1
9	**AA043360**	Timing Belt -200	1
10	AB03 0453	Timing Pulley -482	1
11	AA16 1100	Stopper Cushion - 5.4x8.5x18	1
12	A069 5352	Harness - Ground Wire - Scanner	1
13	A109 1842	Scanner Drive Motor - DC24V	1
14	A109 1838	Scanner Motor Cushion	1
15	AB03 0452	Timing Pulley -242	1
16	H081 2118	Pressure Spring	1
17	A109 1832	Scanner Drive Bracket	1
18	AA05 0082	Scanner Drive Wire - Rear Right	1
19	A1091835	Lower Cover - Scanner Drive	1
20	AA05 1019	Wire Stopper	1
21	AA05 0081	Scanner Drive Wire - Front Right	1
22	53612080	Plate: Wire Clamp	2
23	AA05 0080	Scanner Drive Wire - Rear Left	1
24	AA06 0083	Tension Wire Spring	1
25	AA05 0079	Scanner Drive Wire -Front Left	1
26	AA15 0266	Seal - 0.1x29x100	1
27	A109 1129	Left Bracket	1
28	A1093460	Toner Hopper Stopper	1
29	A109 1331	Operation Panel Holder	2
30	A109 1332	Middle Bracket - Operation Panel	1
31	A109 1125	Right Bracket - Operation Panel	1
32	AA14 3431	Stepped Screw - M4	1
33	AA06 6233	Stopper Spring	1

ndex No.	Part No,	Description	Q'ty Per Assembly
100	0434 0060B	Philips Tapping Screw - M4x6	
101	03130050B	Philips Pan Head Screw - M3x5	
102	0314 0120B	Philips Pan Head Screw - M4x12	
103	0574 0060E	Hexagon Headless Set Screw - M4x6	
104	08074076	Washer - 8.2x6.1x0.3mm	
105	08053145	Ball Bearing - 6x12x4mm	
106	08074047	Wave Washer - 6mm	
107	0720 0040B	Retaining Ring - M4	
108	0951 4008B	Philips Screw With Washer - M4x8	
109	03140080B	Philips Pan Head Screw - M4x8	
110	0344 0060F	Philips Truss Head Screw - M4x6	
111	0951 4006B	Philips Screw With Washer - M4x6	

5. OPTICS SECTION 2 (A109)

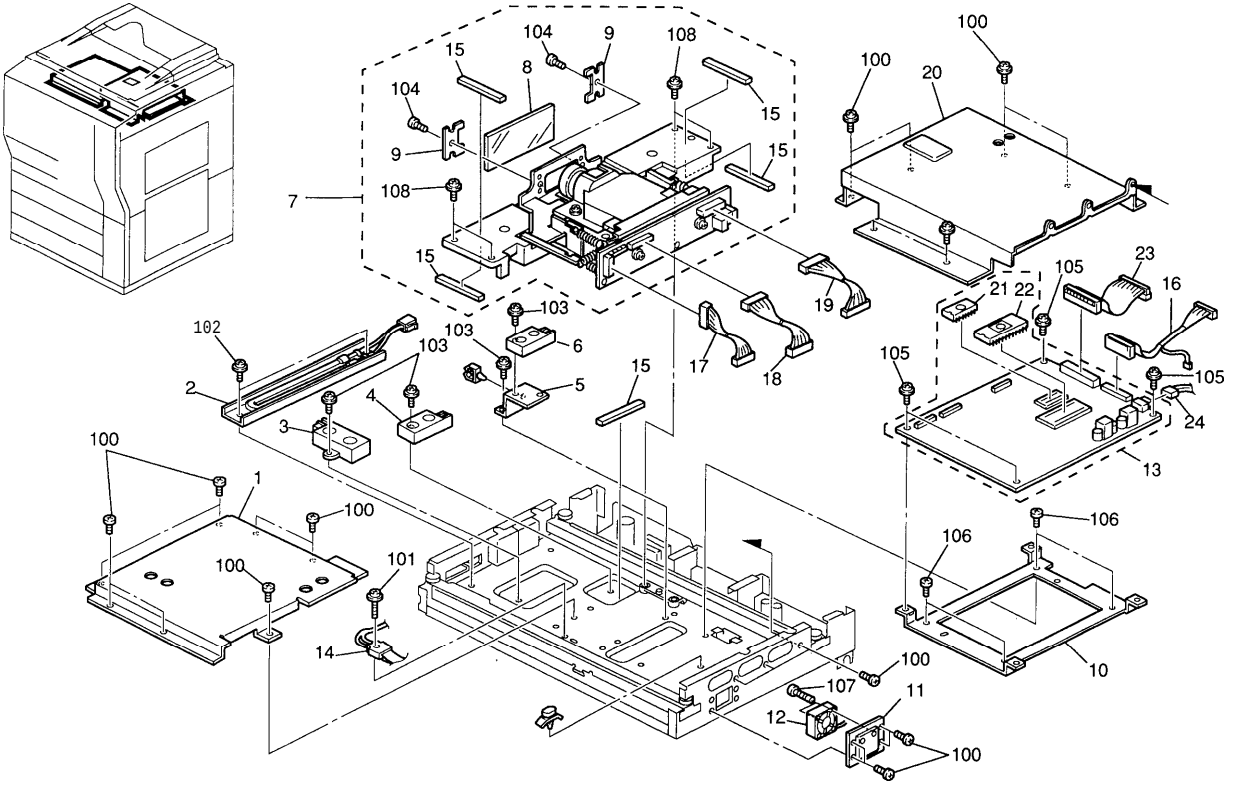


5. OPTICS SECTION 2 (AI09)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A109 1921	2nd Mirror	2
2	A006 1721	Front Spring Plate	2
3	AC03 5051	Spring Plate - 2nd Mirror	2
4	A069 1883	Shoe - Scanner	8
5	AB03 2041	Pulley - 26Z	2
6	A109 1741	2nd Scanner Ass'y	1
7	A109 5378	Exposure Lamp Harness	1
8	A109 1920	1st Mirror	1
9	AW11 0011	Thermostat 140°C AC120V 15A	1
10	A109 1731	1st Scanner Ass'y	1
11	A109 1715	Front Terminal Holder	1
12	A109 1717	Front Terminal - Exposure Lamp	1
13	AX52 0017	Exposure Lamp - 7.5V 200W	1
14	A1091711	Rear Terminal Holder	1
15	A109 1713	Rear Terminal - Exposure Lamp	1
16	A109 1700	Reflector	1
17	A109 1707	Reflector Cover	1
18	54472769	Stepped Screw	2
19	A1091708	Reflector Bracket	1
20	A1095377	Exposure Lamp Relay Harness	1
21	A048 1721	Spring Plate A	2

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0720 0050B	Retaining Ring - M5	
101	0952 3008B	Screw - M3X8	
102	0951 3006B	Philips Screw With Flat Washer-M3x6	
103	0313 0060B	Philips Pan Head Screw - M3x6	
104	0952 3012B	Screw - M5X12	

6. OPTICS SECTION 3 (AI09)

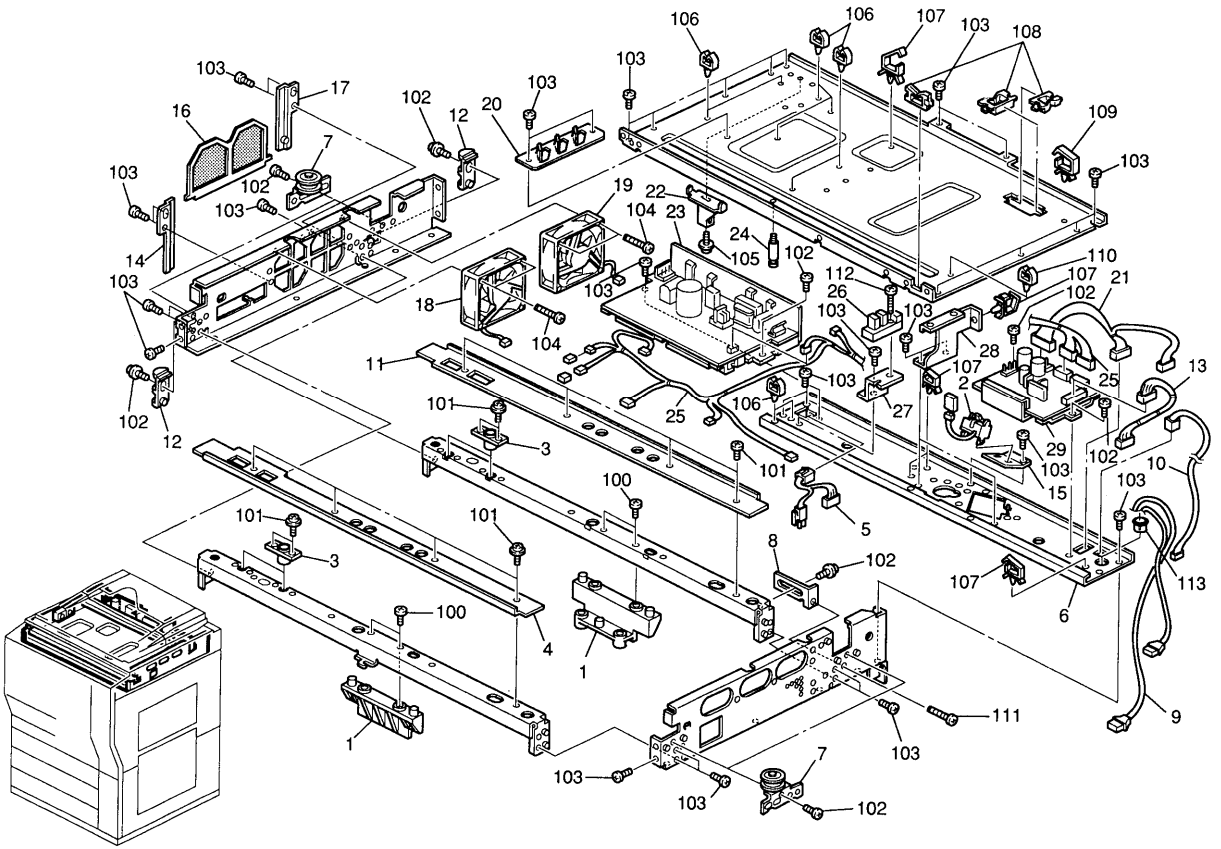


6. OPTICS SECTION 3 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A109 1806	Original Sensor Cover	1
2	AX40 0021	Anti-condensation Heater - 115V 18W	1
2	AX40 0022	Anti-condensation Heater - 240V 18W	1
3	AW01 0034	Original Width Sensor	1
4	AW01 0037	Original Length Sensor	1
5	A109 1882	Original Sensor Bracket	1
6	AW01 0033	Original SensorAss'y - H = 3-5o	1
7	A1091636	Lens Unit	1
8	AA01 1039	Correction Filter	1
9	A1091789	Spring Plate	2
10	A109 1853	Scanner Control Board Bracket	1
11	A109 1884	Optics Exhaust Bracket	1
12	AX64 0045	Cooling Fan Motor - DC24V 2.40W	1
13	A1095291	Scanner Control Board	1
14	A1095378	Exposure Lamp Harness	1
15	A109 1785	Spacer - 9.5x9.5x72	5
16	A1095341	Scanner Interface Harness	1
17	A1095336	CCD Harness -2	1
18	A1095335	CCD Harness -1	1
19	A1095337	CCD Harness -3	1
20	A109 1805	Scanner Control Board Cover	1
21	A109 5146	IC - 512KX8120NS	1
22	A109 5145	IC - uPD78P312ACW	1
23	A1095338	IPU Harness	1
24	AW03 0035	Optics Fiber Cable - 900mm	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0434 0060B	Philips Tapping Screw - M4x6	
101	09523012B	Screw - M5X12	
102	0957 4008B	Philips Screw W/F Washer - M4x8	
103	0951 3008B	Philips Screw With Flat Washer - M3x8	
104	0313 0050B	Philips Pan Head Screw - M3x5	
105	0951 3006B	Philips Screw With Flat Washer - M3x6	
106	0433 0050B	Tapping Screw - M3x5	
107	0951 4014B	Philips Screw With Washer - M4x14	
108	0951 4010B	Philips Screw With Washer - M4x10	

7. OPTICS SECTION 4 (A109)

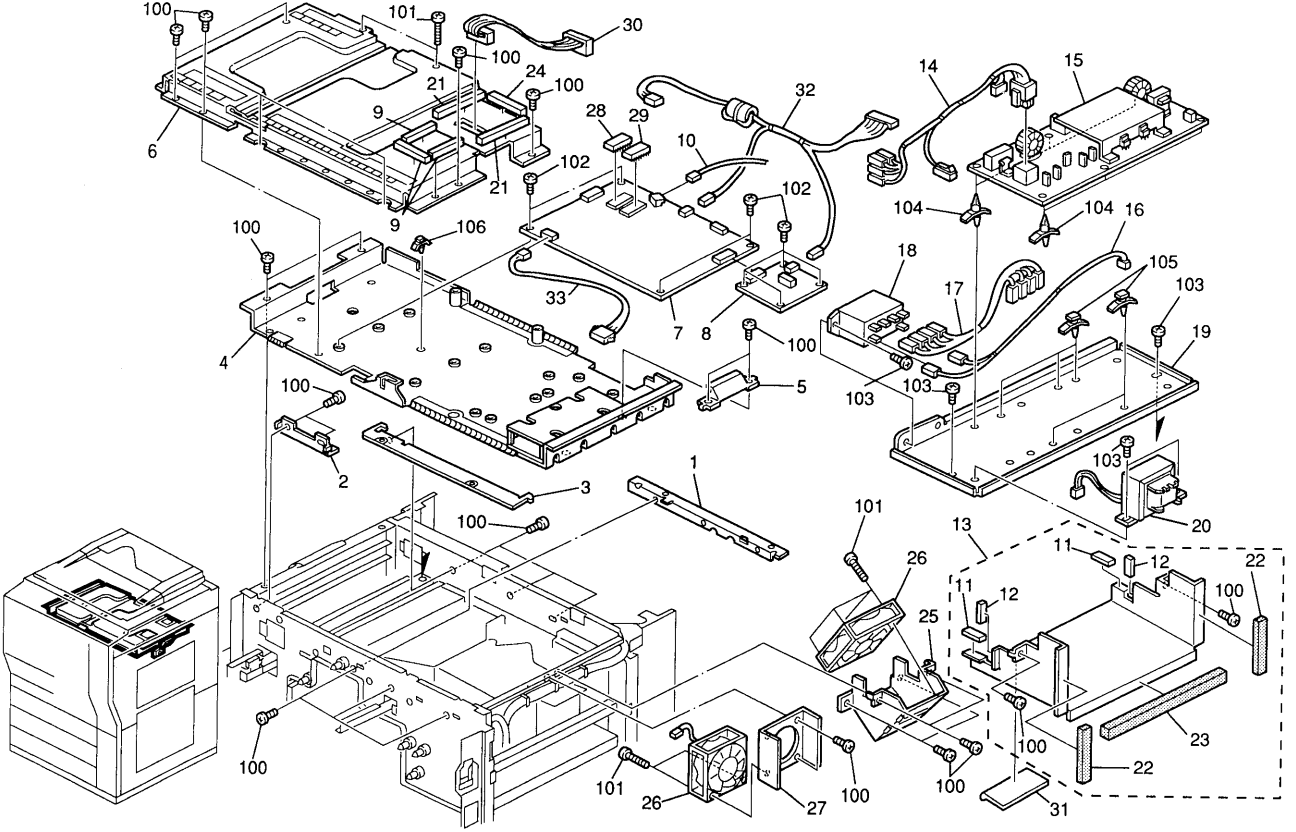


7. OPTICS SECTION 4 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A012 1752	Lens Bracket Block	2
2	AW02 0065	Photointerruptor	1
3	A109 1867	Pin Guide	4
4	A1091869	Front Slide Rail	1
5	A1095376	Scanner AC Harness	1
6	A109 1831	Scanner Drive Board Bracket	1
7	A060 1822	Scanner Wire Pulley	4
8	A1091818	Wire Adjuster	1
9	AW03 0034	Optics Fiber Cable - 1400mm	1
10	A1095339	Operation Panel Relay Harness	1
11	A1091868	Rear Slide Rail	1
12	A060 1824	Scanner Wire Pulley	2
13	A1095341	Scanner Interface Harness	1
14	A109 1861	Dust Filter Front Guide	1
15	A060 1812	Sensor Bracket	1
16	AA01 2066	Optics Cooling Fan Filter	1
17	A109 1862	Dust Filter Rear Guide	1
18	AX64 0048	Dev. Exhaust Fan Motor -DC24V 2.88W	1
19	AX64 0047	Dev. Exhaust Fan Motor - DC24V 3.36W	1
20	A1091854	Scanner Louver	1
21	A1095340	Scanner DC Harness	1
22	A1095711	IPU Unit Position Plate	1
23	AZ23 0037	Lamp Regulator - 115V	1
23	AZ23 0047	Lamp Regulator - 230V	1
24	AA14 3419	Support Stud	1
25	A1095342	Scanner Drive Harness	1
26	AW02 0061	Photointerruptor - EE-SX4019-Pi	1
27	A109 1881	H.P Sensor Bracket	1
28	A1091885	Support Plate	2
29	A1095151	Scanner Motor Drive Board	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0314 0080B	Philips Pan Head Screw - M4x8	
101	0951 3006B	Philips Screw With Flat Washer - M3x6	
102	0951 4008B	Philips Screw With Washer - M4x8	
103	0434 0060B	Philips Tapping Screw - M4x6	
104	03140300B	Philips Pan Head Screw - M4x30	
105	03130060B	Philips Pan Head Screw - M3x6	
106	11050199	Clamp	
107	11050310	Wire Clamp	
108	11050113	Edge - P108	
109	11050292	Wire Saddle	
110	11050193	Nylon Stud	
111	03140200B	Philips Pan Head Screw - M4x20	
112	0314 0120B	Philips Pan Head Screw - M4x12	
113	11060310	Bushing	

8. PRINTER SECTION 1 (A109)

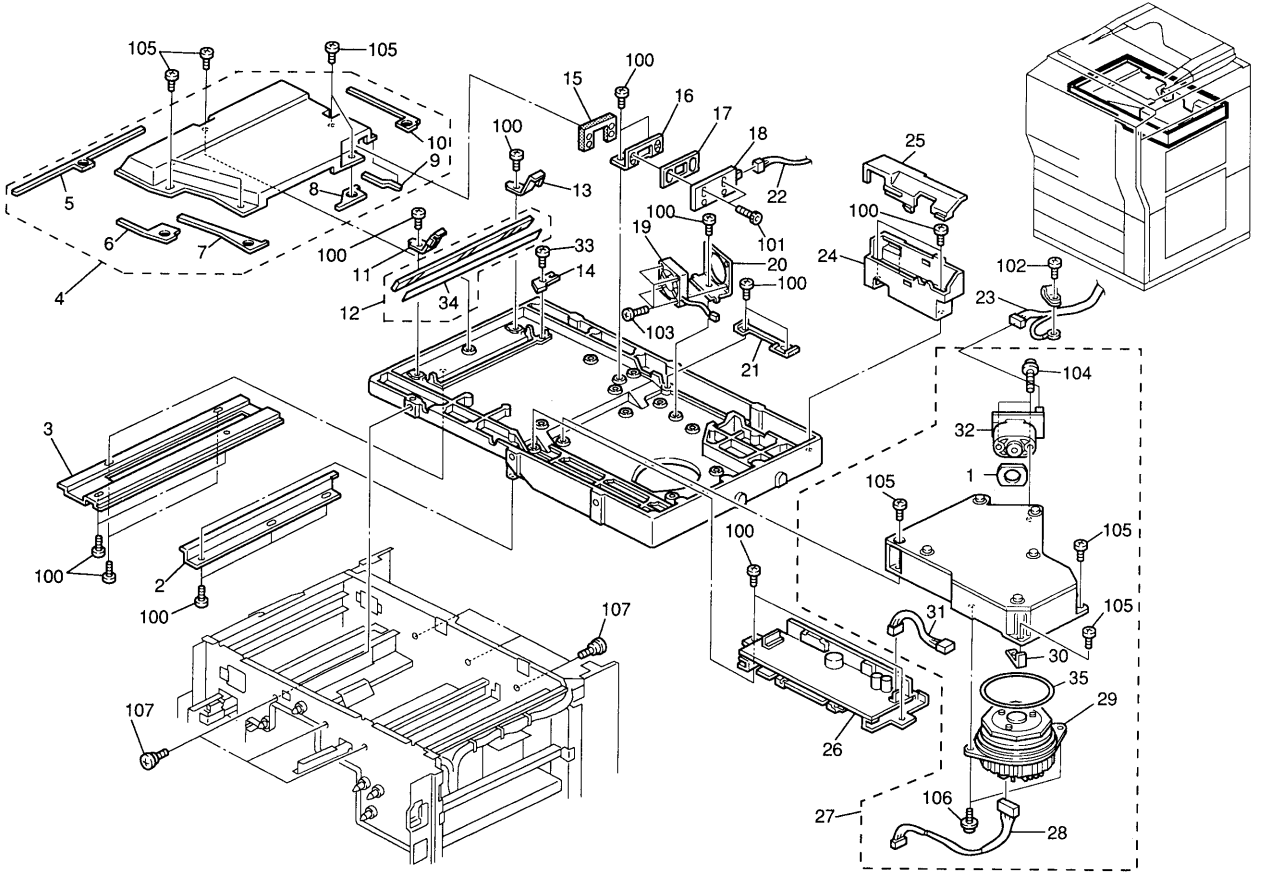


8. PRINTER SECTION 1 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A1095722	Front Guide Plate - IPU	1
2	A1095724	IPU Fixing Bracket	1
3	A109 5723	Rear Guide Plate - IPU	1
4	A1095701	IPU Unit Base	1
5	A1095705	IPU Cooling Fan Louver	1
6	A1095707	IPU Board Cover	1
7	A1095213	IPU Board	1
8	A1095236	IPU Interface Board	1
9	A109 5731	IPU Cover Seal	3
10	AW03 0029	Fiber Cable -800	1
11	AA15 1866	Seal - 3x7x30	2
12	AA15 1867	Seal - 3x7x23.5	2
13	A1092080	Optics Cooling Fan Duct	1
14	A1095373	Front AC Harness	1
15	A109 5421	AC Drive Board - 100/115V	1
15	A1095621	AC Drive Board - 230V	1
16	A1095325	DC Relay Harness	1
17	A1095374	AC Relay Harness	1
18	12081313	Relay - G5D-22423T-LIS60 DC24V	1
19	A1095745	AC Drive Board Bracket	1
20	AZ02 0006	Coil - 4.6mm 5A	1
21	A1095720	Seal - 9.5x9.5x1 25	2
22	AA15 1868	Seal - 3x7x64	2
23	AA15 1869	Seal - 3x7xl 7.3	1
24	A1095721	Seal - 9.5x9.5x66	1
25	A1095729	IPU Cooling Fan Bracket	1
26	AX64 0041	Cooling Fan Motor - DC247.64W	2
27	A1095730	Polygon Motor Fan Bracket	1
28	A1095206	IC - 128K 8BIT 120NS	1
29	A1095207	IC - 128K 8BIT 120NS	1
30	A1095338	IPU Harness	1
31	AA15 1870	Seal - 3x20x76	1
32	A1095309	IPU Board Relay Harness	1
33	A1095326	IPU Harness	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0434 0080B	Philips Tapping Screw - M4x8	
101	0314 0300B	Philips Pan Head Screw - M4x30	
102	0314 0080M	Philips Pan Head Screw - M4x8	
103	0354 0060B	Screw - M4X6	
104	11050193	Nylon Stud	
105	11050409	Spacer	
106	11050246	Spacer	

9. PRINTER SECTION 2 (A109)

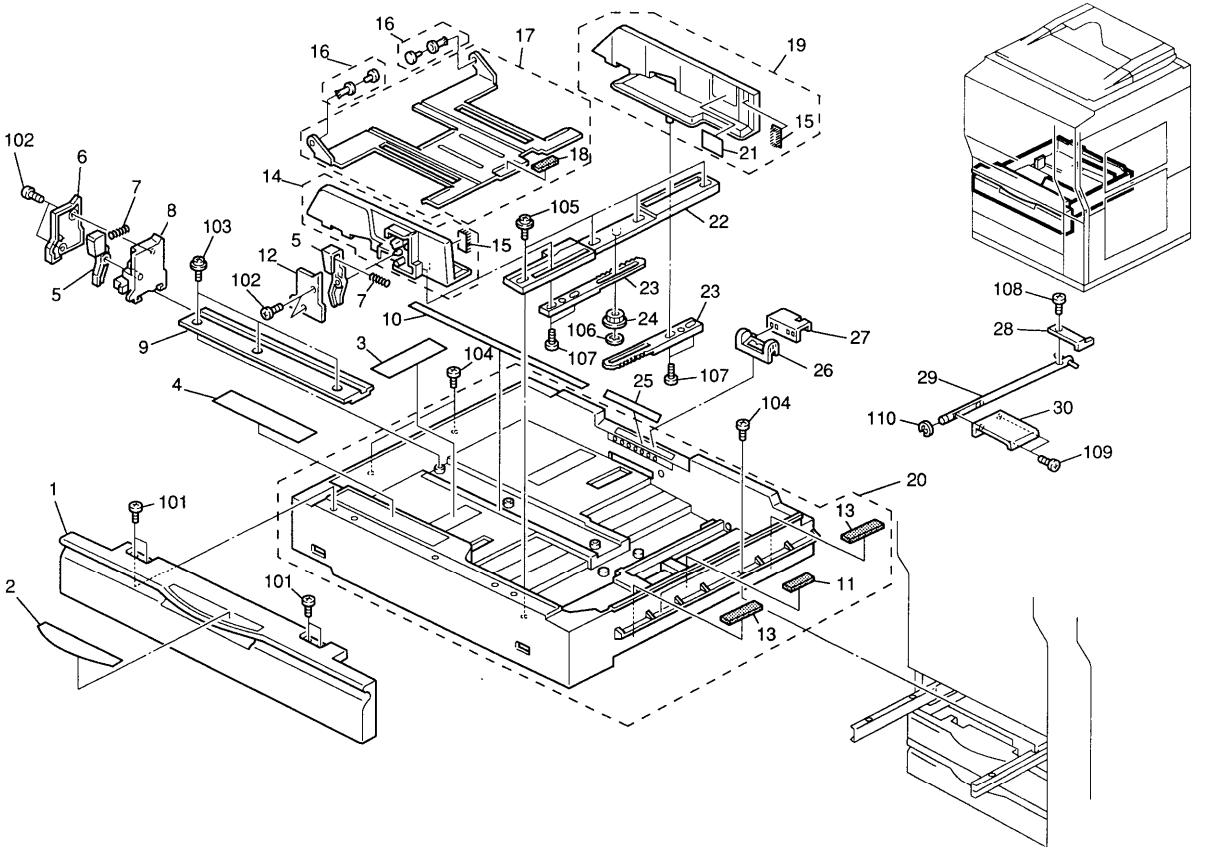


9. PRINTER SECTION 2 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	AA152094	Seal - 22x38x2	1
2	A1092066	Right Rail	1
3	A109 2065	Left Rail	1
4	A1092136	Mirror Cover	1
5	AA151855	Mirror Seal 5	1
6	AA151852	Mirror Seal 2	1
7	AA15 1854	Mirror Seal 4	1
8	AA151853	Mirror Seal 3	1
9	AA15 1856	Mirror Seal 6	1
10	AA15 1851	Mirror Seal 1	1
11	AC03 5021	Front Spring Plate	1
12	A109 2130	Drum Mirror Ass'y	1
13	AC03 5020	Rear Spring Plate	1
14	A1092069	Mirror - Synchronizing	1
15	AA150347	Shielding Sheet -21.5x41	1
16	A1092128	Diode Bracket	1
17	AA151858	Seal - 5x18x40	1
18	A1095171	Laser Synchronizing Detector Board	1
19	AX64 0045	Cooling Fan Motor - DC24V 2.40W	1
20	A1092072	LD Cooling Fan Bracket	1
21	A1092070	Synchronizing Harness Bracket	1
22	A1095333	Synchronizing Detector Harness	1
23	A1095332	LD Unit Harness	1
24	A1095718	IPU Lower Harness Cover	1
25	A1095719	IPU Upper Harness Cover	1
26	AY10 0002	Polygon Motor Board	1
27	A109 2159	Optical Housing Unit	1
28	A060 5547	Polygon Motor Harness	1
29	AX06 0094	Polygon Motor - DC24V	1
30	A0372113	Optical Housing Spacer	1
31	A109 5312	Relay Harness - Polygon Motor	1
32	A109 2160	LD Unit	1
33	52032679	Pinion Tightening Screw - M4x5	1
34	A109 2131	Sheet - Drum Mirror	1
35	AA15 2061	O-ring 83	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0354 0060B	Screw - M4X6	
101	0593 0060E	Bolt - M3x6	
102	0953 4008M	Screw - M4X8	
103	0951 3014B	Philips Screw With Washer -M3x14	
104	0951 3020B	Philips Screw With Flat Washer - 3x8	
105	0354 0100B	Screw - M4x10	
106	0960 4008B	Philips Flange Screw - M4x8	
107	08030020	Positioning Pin	

10. 1ST PAPER FEED TRAY (A109)

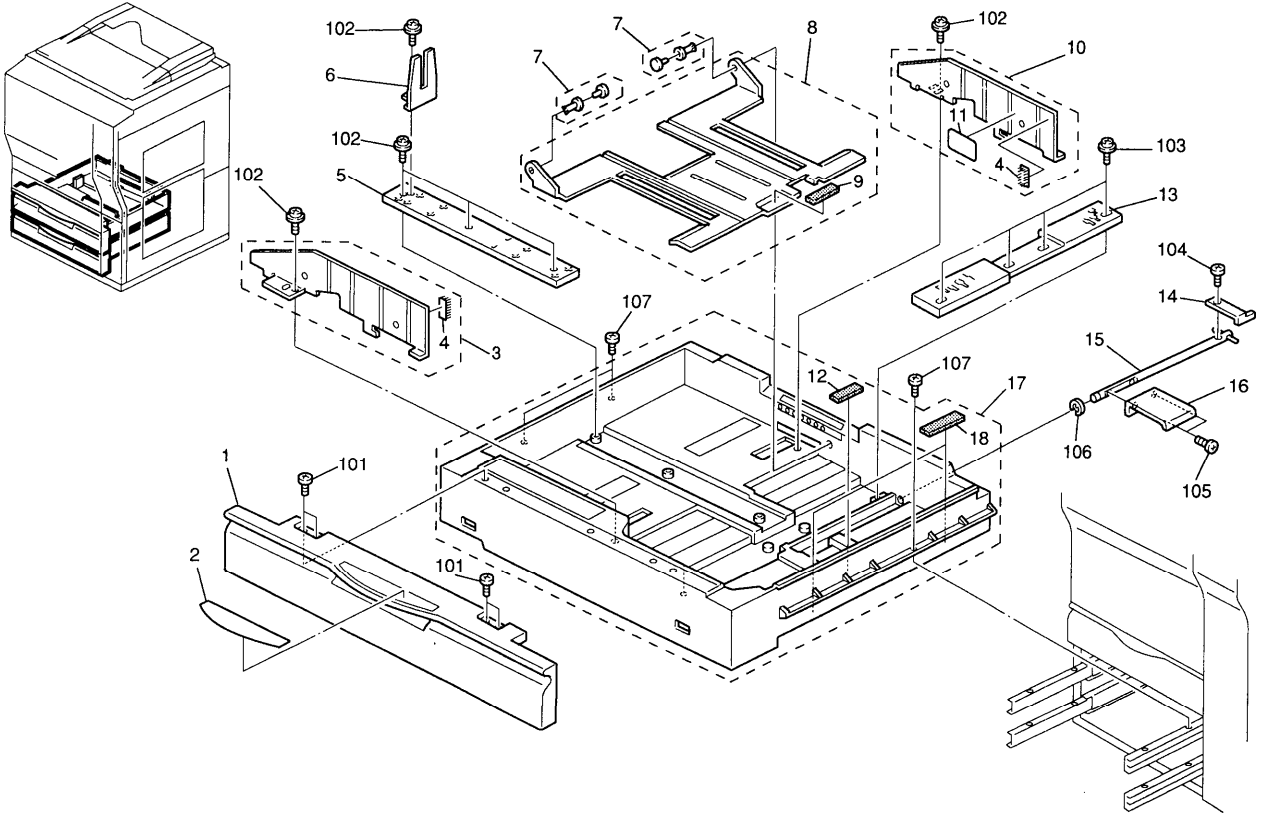


10. 1ST PAPER FEED TRAY (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A513 2829	Paper Tray Cover	1
2	AA000143	Decal - No.1	1
3	AA00 2177	Decal - Side Fence - LT	1
3	AA002176	Decal - Side Fence - A4	1
4	AA00 0134	Decal - Universal Tray	1
5	A096 6537	Stopper Lever	2
6	A096 6563	End Fence Cover	1
7	AA06 6550	Stopper Spring - 22mm	2
8	A096 6562	End Fence	1
9	A096 6564	End Fence Plate	1
10	AA00 2179	Decal - End Fence LT	1
10	AA002178	Decal - End Fence -A4	1
11	AA15 1804	Lever Cushion	1
12	A096 6536	Side Fence Cover	1
13	AA15 1805	Bottom Plate Cushion	2
14	A096 6534	Front Side Fence	1
15	A096 6553	Side Fence Pad	2
16	A048 2838	Nylon Rivet	2
17	A096 6556	Tray Bottom Plate	1
18	AF01 3002	Bottom Plate Pad	1
19	A096 6541	Gear Side Fence	1
20	A096 6520	Paper Tray	1
21	AA00 2010	Decal - Paper Level	1
22	A096 6545	Side Fence Plate - LT	1
22	A096 6544	Side Fence Plate - A4	1
23	A096 6539	Side Fence Gear	2
24	AB01 3492	Gear - 16Z	1
25	AA002181	Decal - LT	1
25	AA002184	Decal - A4	1
26	A096 6577	Size Sensor Slider	1
27	A096 6578	Size Sensor Plate	1
28	A096 6527	Paper Guide Feeler	1
29	A096 6524	Lift Shaft	1
30	A096 6526	Lift Lever	1

ndex No.	Part No.	Description	Q'ty Per Assembly
101	0414 0082F	Philips Truss Head Screw - M4x8	
102	0413 0082B	Tapping Screw - M3x8	
103	0965 4008B	Tapping Screw - M4 x 8	
104	0354 0050F	Philips Pan Head Bind Screw - M4x5	
105	0951 3008B	Philips Screw With Flat Washer - M3x8	
106	0805 0073	Retaining Ring - M5	
107	0433 0082B	Tapping Screw - M3x8	
108	0313 0060B	Philips Pan Head Screw - M3x6	
109	0314 0080B	Philips Pan Head Screw - M4x8	
110	0720 0060B	Retaining Ring - M6	

11. 2ND AND 3RD PAPER FEED TRAY (A109)

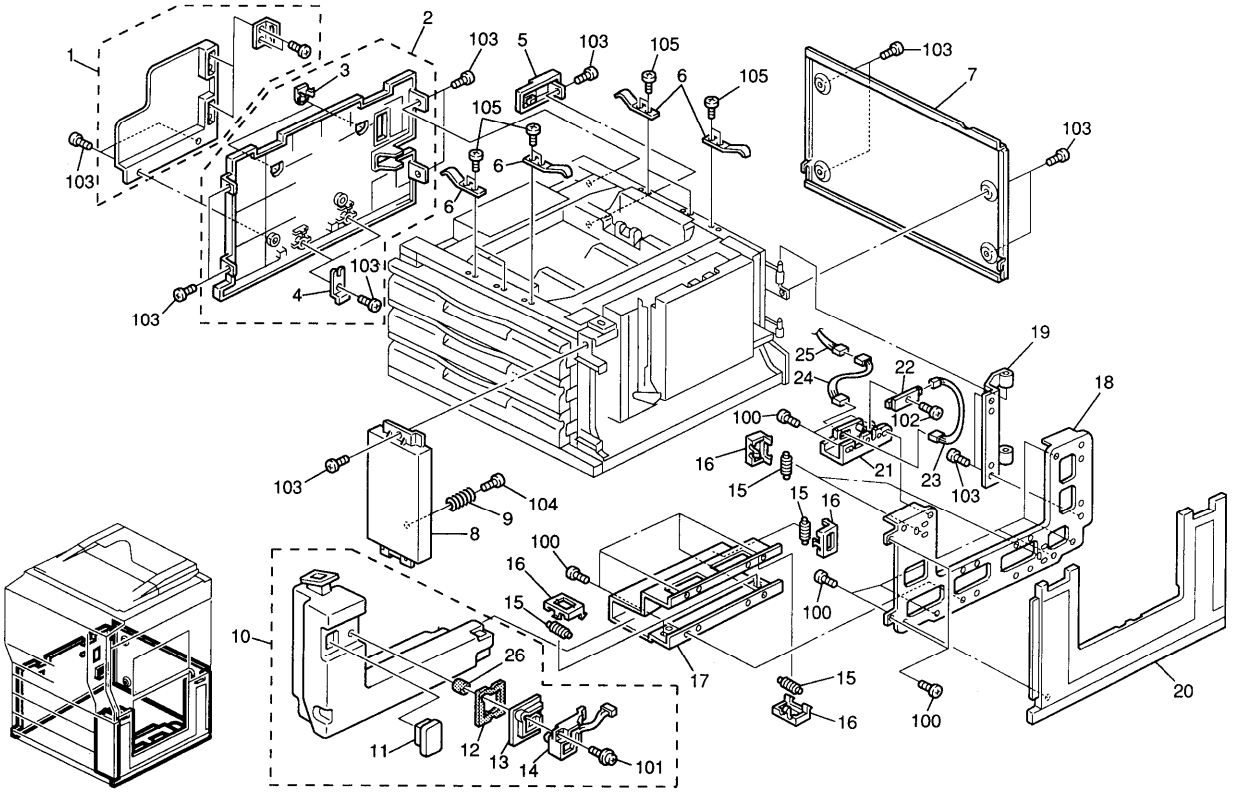


11. 2ND AND 3RD PAPER FEED TRAYS (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A513 2829	Paper Tray Cover	2
2	AA00 0138	Decal - No.2	1
2	AA00 0139	Decal - No.3	1
3	A096 6549	Front Side Fence	2
4	A029 7904	Pad - CFF	4
5	A096 6568	Position Plate - End Fence	2
6	AF01 7010	End Fence	2
7	A048 2838	Nylon Rivet	4
8	A096 6556	Tray Bottom Plate	2
9	AF01 3002	Bottom Plate Pad	2
10	A096 6550	Rear Side Fence	2
11	AA00 2010	Decal - Paper Level	2
12	AA15 1804	Lever Cushion	1
13	A096 6551	Position Plate - Side Fence	2
14	A096 6527	Paper Guide Feeler	2
15	A096 6524	Lift Shaft	2
16	A096 6526	Lift Lever	2
17	A096 6520	Paper Tray	2
18	AA15 1805	Bottom Plate Cushion	4

ndex No.	Part No.	Description	Q'ty Per Assembly
101	0414 0082F	Philips Truss Head Screw - M4x8	
102	0965 4008B	Tapping Screw - M4 x 8	
103	0952 3008B	Screw - M3X8	
104	0313 0060B	Philips Pan Head Screw - M3x6	
105	0314 0080B	Philips Pan Head Screw - M4x8	
106	0720 0060B	Retaining Ring - M6	
107	0354 0050F	Philips Pan Head Bind Screw-M4x5	

12. PAPER SUPPLY UNIT 1 (A109)

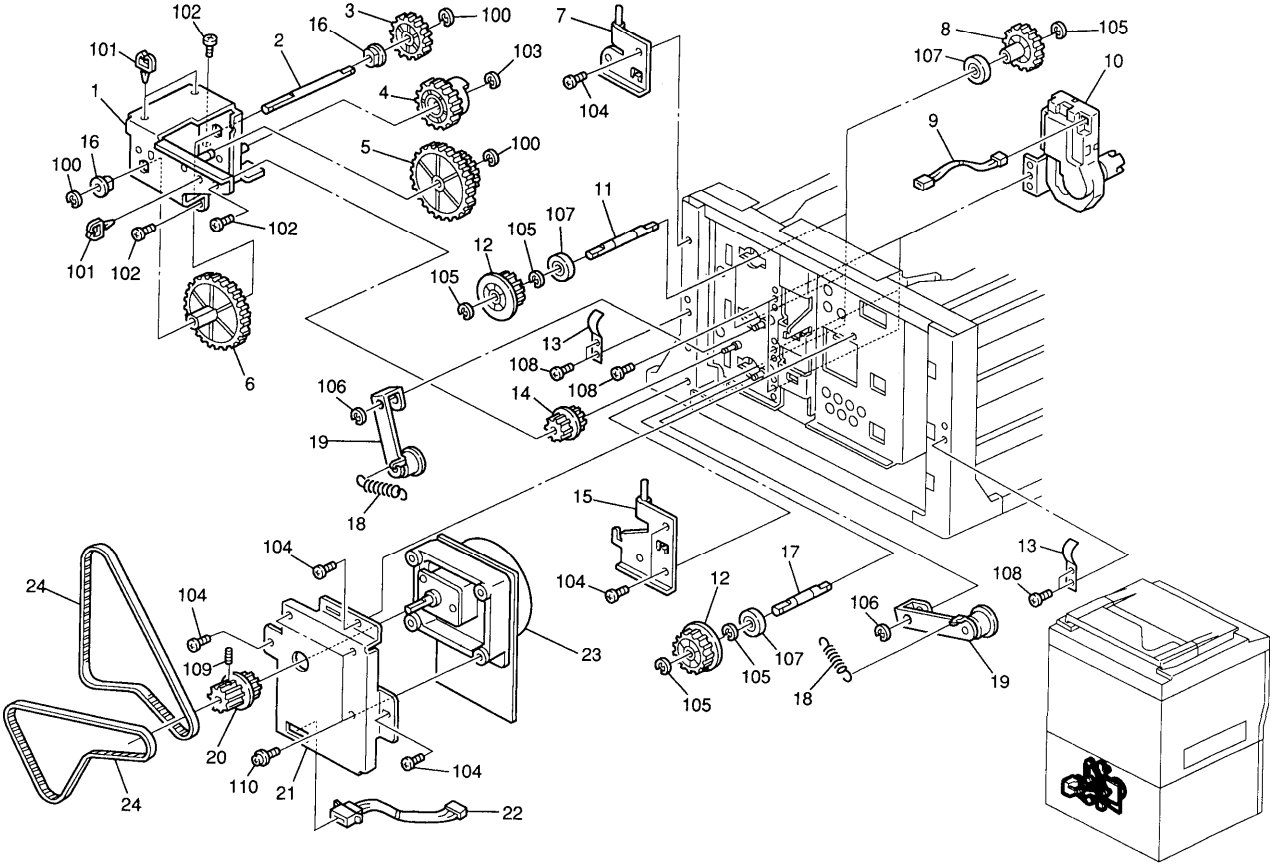


12. PAPER SUPPLY UNIT 1 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A1091591	Operating Instructions Holder	1
2	A5131335	Left Cover -Paper Feed Unit	1
3	A0061329	Cap Left Cover	2
4	A5131338	Left Cover Bracket	2
5	A5131341	Rear Left Cover - Paper Feed Unit	1
6	A0271673	Spring Plate	6
7	A1091364	Rear Lower Cover	1
8	A5131356	Front Cover - Paper Feed Unit	1
9	AA06 3492	Spring	1
10	A5136600	Toner Collection Bottle	1
11	AA036013	Toner Collection Cap	1
12	A0073763	Adhesive Tape - Sensor Holder	1
13	A0073762	Sensor Holder	1
14	A5135403	Toner Overflow Sensor	1
15	A0603826	Toner Collection Bottle Roller	6
16	A0603827	Roller Holder	6
17	A5136643	Collection Bottle Guide Plate	1
18	A5136642	Right Side Plate	1
19	A5136644	Right Lower Hinge - Tray Unit	1
20	A5131349	Right Cover - Paper Feed Unit	1
21	A5136152	Humidity Sensor Holder	1
22	A1095196	Humidity Sensor	1
23	A1095362	Humidity Sensor Harness	1
24	A5135364	Relay Harness - Humidity Sensor	1
25	A5135351	Front Harness - Paper Feed Unit	1
26	A513 6603	Seal - Toner Overflow Sensor	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0354 0060B	Screw - M4X6	
101	0965 3006W	Tapping Screw With Flat Washer - M3x6	
102	0353 0050B	Philips Truss Head Screw - M3x5	
103	0344 0060F	Philips Truss Head Screw - M4x6	
104	0414 0082B	Binding Self Tapping Screw - M4x8	
105	0433 0060B	Philips Tapping Screw - M3x6	

13. PAPER SUPPLY UNIT 2 (A109)

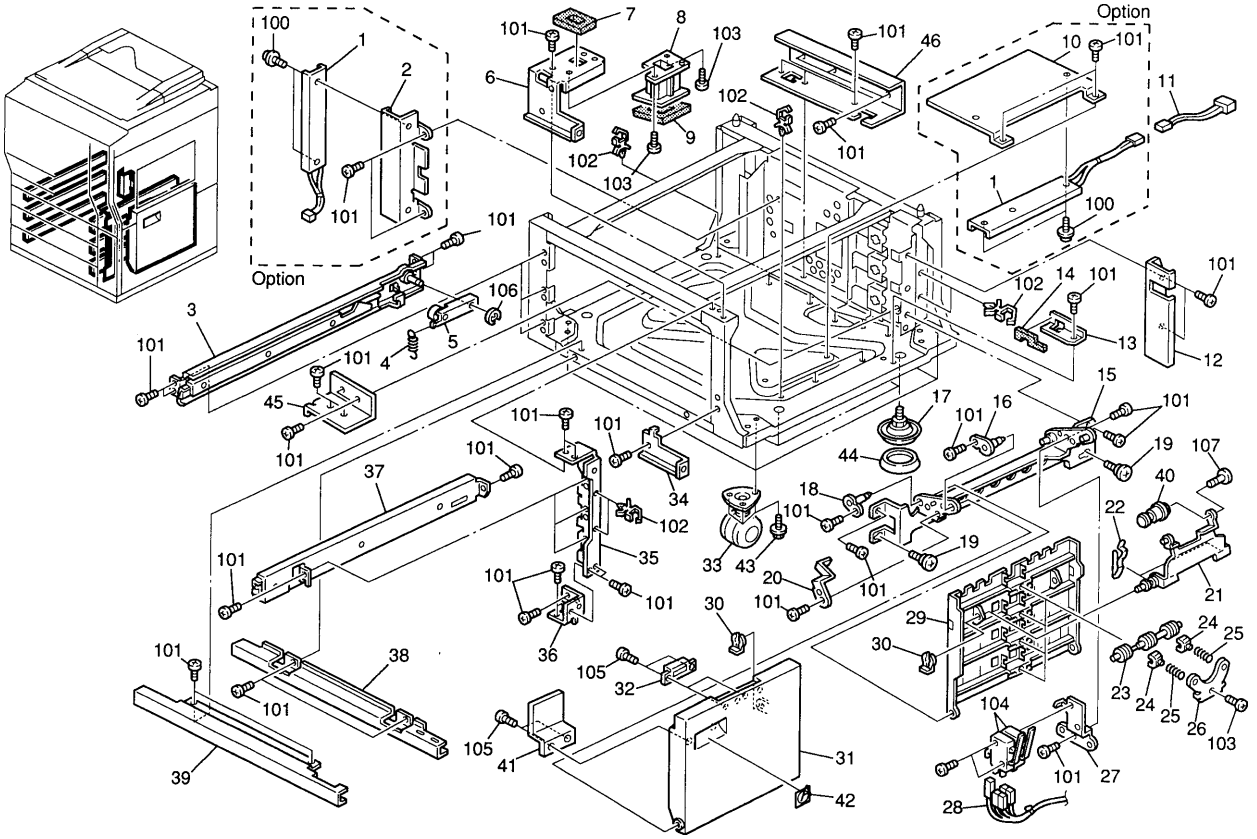


13. PAPER SUPPLY UNIT 2 (A109)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A513 6622	Tray Unit Gear Holder	1
2	AA14 8403	Shaft	1
3	AB01 3856	Gear - 31Z	1
4	AB01 7325	Gear - 35Z	1
5	AB01 7324	Gear - 26Z/70Z	1
6	AB01 3855	Gear - 68Z	1
7	A513 1173	Upper Hinge - Paper Feed Unit	1
8	AB01 3781	Gear - 30Z	3
9	A513 5353	Relay Harness - Lift Motor	3
10	A513 2840	Paper Lift Motor	3
11	AA14 5223	Drive Shaft	2
12	AB03 0456	Timing Pulley - 30Z	3
13	A027 1673	Spring Plate	2
14	AB03 3058	Timing Pulley - 22Z	1
15	A513 1175	Lower Hinge - Paper Feed Unit	1
16	5053 0447	Bushing - 6mm	2
17	AA14 5224	Drive Shaft	1
18	AA06 0560	Release Spring	2
19	A513 2820	Belt Tightener	2
20	AB03 0449	Timing Pulley - 23Z	1
21	A513 2846	Paper Feed Motor Bracket	1
22	A513 5358	Relay Harness - Paper Feed Motor	1
23	AX06 0087	Paper Feed Motor - DC22W	1
24	AA04 3239	Timing Belt - P3M6 486mm	2

Index No.	Part No.	Description	Q'ty Per Assembly
100	0720 0040B	Retaining Ring - M4	
101	1105 0199	Clamp	
102	0434 0080B	Philips Tapping Screw - M4x8	
103	0720 0050E	Retaining Ring - M5	
104	0964 4008B	Tapping Screw With Flat Washer - M4x8	
105	0720 0060B	Retaining Ring - M6	
106	0720 0040B	Retaining Ring - M4	
107	0740 3008	Ball Bearing - 8x22x7	
108	0433 0060B	Philips Tapping Screw - M3x6	
109	0574 0060B	Hexagon Headless Set Screw - M4	
110	0951 4008B	Philips Screw With Washer - M4x8	

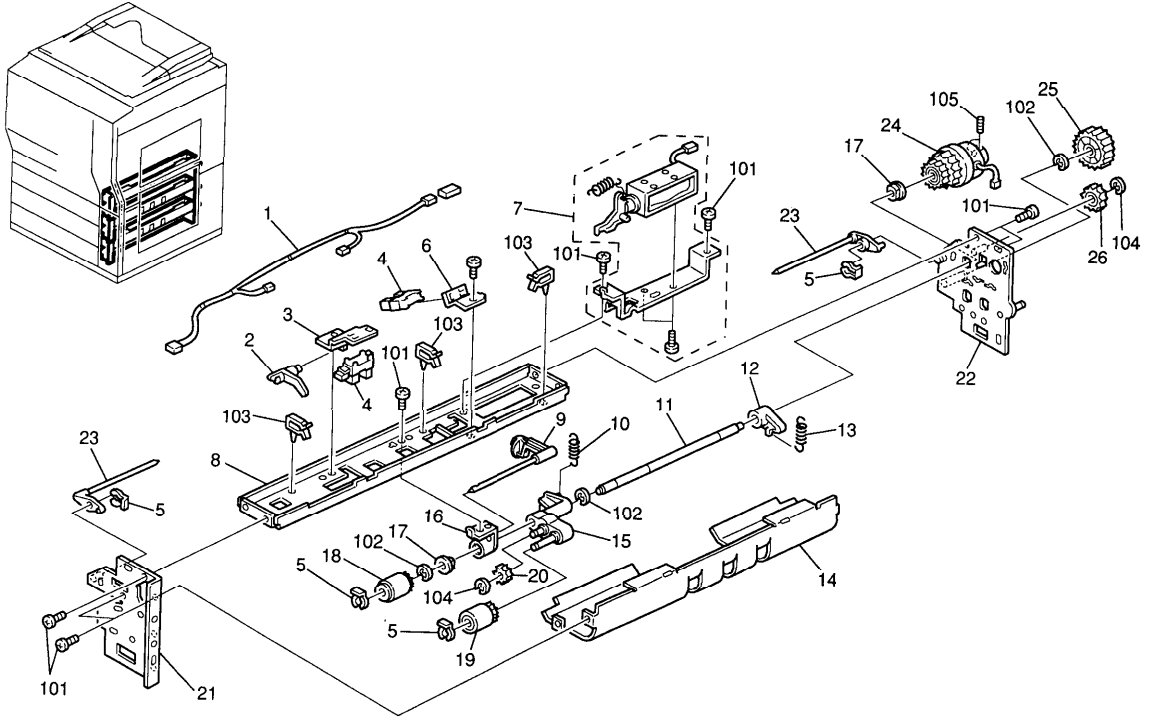
14. PAPER SUPPLY UNIT 3 (AI09)



14. PAPER SUPPLY UNIT 3 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	AX40 0021	Heater - 115V 18W	2
1	AX40 0022	Heater - 240V 18W	2
2	A513 2870	Upper Tray Heater Bracket	1
3	A513 2861	Left Rail - Paper Tray	3
4	AA06 0534	Tray Lock Spring - 19mm	3
5	A096 6266	Tray Lock Arm	3
6	A513 6612	Joint Case Bracket	1
7	A513 6614	Upper Shielding Seal	1
8	A513 6613	Collection Joint Case	1
9	A513 6615	Lower Shielding Seal	1
10	A096 6100	Lower Heater Sink	1
11	A513 5383	Heater Harness	1
12	A513 2809	Rear Cover - Vertical Transport	1
13	A513 6652	Collection Bottle Stopper	1
14	A513 6653	Collection Bottle Cushion	1
15	A513 2760	Vertical Transport Guide Bracket	1
16	A513 2785	Guide Plate Rear Holder	2
17	5424 1064	Screw Stand	4
18	A513 2775	Guide Plate Front Holder	1
19	AA14 3074	Stepped Screw - M4x5	2
20	A513 2776	Guide Plate Stopper	1
21	A513 2782	Cover Release Plate	1
22	A513 2783	Spring Plate	2
23	AF02 0295	Vertical Driven Roller	4
24	AA08 0156	Bushing - M4	8
25	AA06 3487	Spring - 10mm	8
26	A513 2762	Pressure Plate	4
27	A513 2771	Switch Bracket - Vertical Transport	1
28	A513 5366	Harness - Paper Feed Door Switch	1
29	A513 2752	Vertical Transport Guide	1
30	5447 2681	Snap Ring	5
31	A513 2780	Vertical Transport Guide Cover	1
32	AG07 0004	Magnetic Catch	2
33	5415 1053	Caster	4
34	A513 6661	Cover Support Plate	1
35	A513 2801	Front Side Frame	1
36	A513 1036	Lower Front Right Bracket	1
37	A513 2850	Right Rail - Paper Tray	3
38	A513 1177	Lower Cover Bracket	1
39	A513 1366	Front Lower Cover	1
40	AA14 7674	Pin - 6x12.7	1
41	A513 2786	Support Cover	1
42	AA00 1330	Decal - Misfeed Removal A	1
43	53011662	Hexagon Bolt	12
44	AH01 3008	Leveling Foot Guide	4
45	A513 1034	Lower Rear Right Bracket	1
46	A513 1035	Lower Rear Left Bracket	1
100	09504010B	Sems Screw M4 x 10	
101	0434 0080B	Philips Tapping Screw - M4x8	
102	11050310	Wire Clamp	
103	0314 0060B	Philips Pan Head Screw - M4x6	
104	12042233	Microswitch -AH715254N	
105	0434 0082F	Tapping Screw - M3x10	
106	0720 0040B	Retaining Ring - M4	
107	0353 0050B	Philips Truss Head Screw - M3x5	

15. PAPER FEED SECTION 1 (A109)

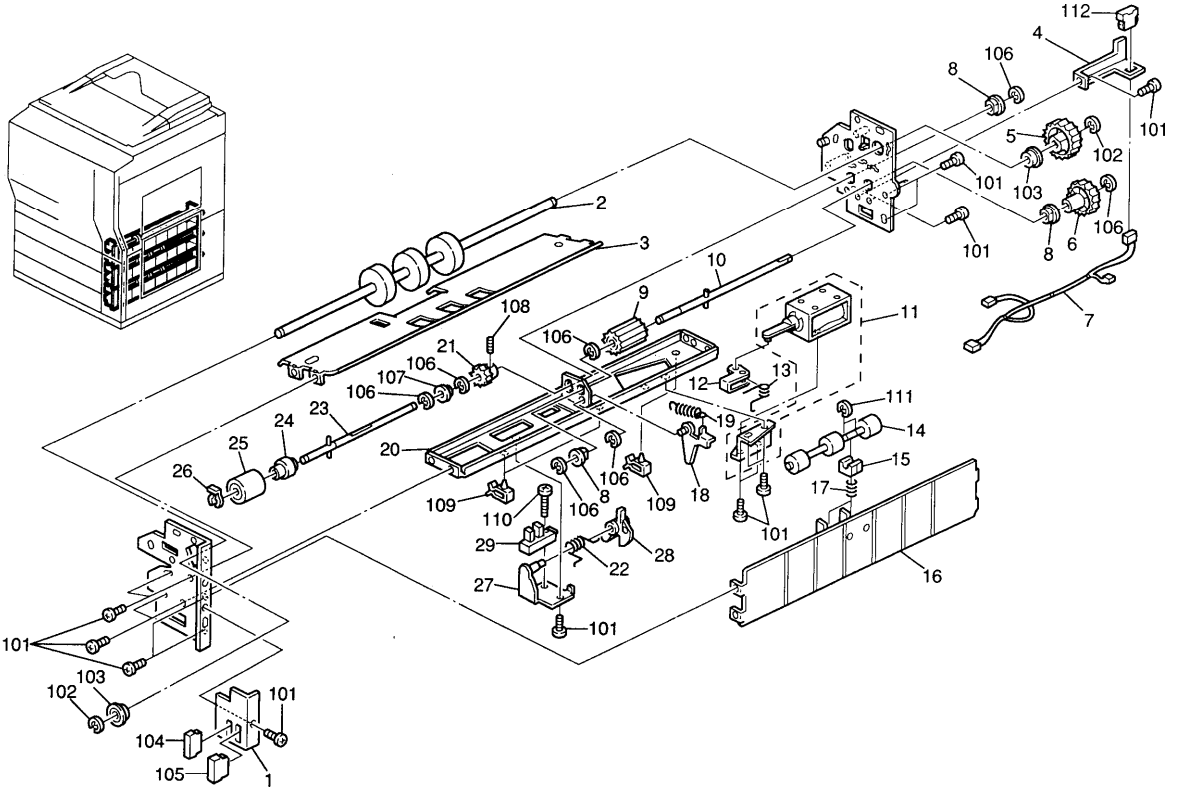


15. PAPER FEED SECTION 1 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembl\
1	A096 5411	Upper Feed Unit Harness	3
2	A096 6344	Paper End Actuator	3
3	A096 6345	End Sensor Bracket	3
4	AW02 0056	Photointerruptor - EE-SX4235A-P1	6
5	54472681	Snap Ring	12
6	A096 6358	Photointerruptor Bracket	3
7	A096 6355	Pick-up Solenoid	3
8	A096 6346	Paper Feed Stay	3
9	A096 6342	Paper End Feeler	3
10	AA06 0523	Pick-up Pressure Spring	3
11	AA14 0498	Feed Roller Shaft	3
12	A096 6353	Feed Roller Lever	3
13	AA06 0522	Stopper Spring	3
14	A096 6337	Paper Feed Guide	3
15	A096 6351	Pick-up Arm	3
16	A096 6352	Feed Roller Bracket	3
17	AA08 2047	Bushing - 8x16x7	6
18	AF03 1022	Paper Feed Roller	3
19	AF03 0020	Pick-up Roller	3
20	54472706	Gear - 15T	3
21	A096 6335	Front Side Plate	3
22	A096 6330	Rear Side Plate	3
23	A096 6360	Paper Flattener	6
24	AX21 0037	Magnetic Clutch	3
25	AB01 3775	Gear - 33Z	3
26	ABOI 3774	Gear - 18Z	3

ndex No.	Part No.	Description	Q'ty Per Assembly
101	0434 0060B	Philips Tapping Screw - M4x6	
102	0720 0060B	Retaining Ring - M6	
103	1105 0087	Clamp	
104	0720 0040B	Retaining Ring - M4	
105	0573 0040B	Hexagon Headless Set Screw - M3x4	

16. PAPER FEED SECTION 2 (A109)

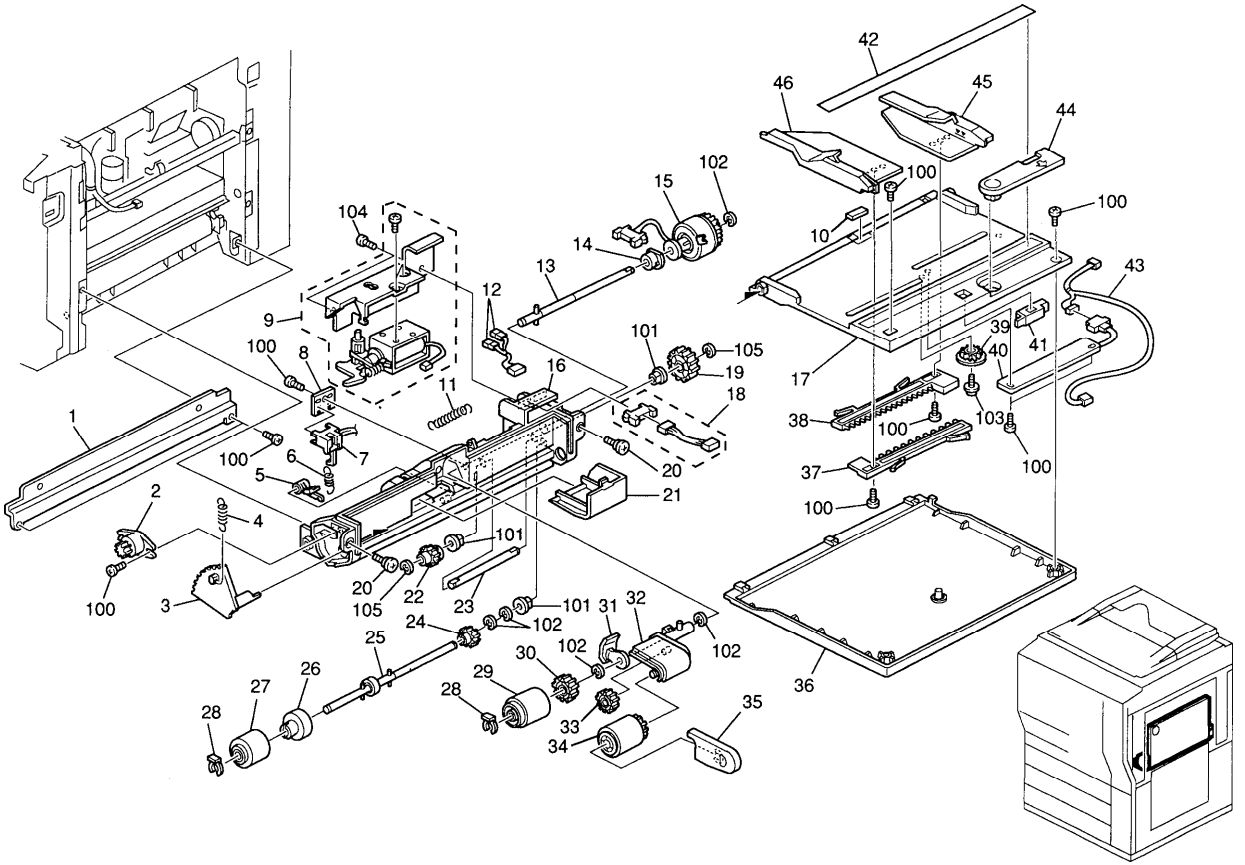


16. PAPER FEED SECTION 2 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A096 6375	Unit Fixing Plate	3
2	AF02 0289	Grip Drive Roller	3
3	A096 6338	Separation Guide	3
4	A096 6366	Clutch Stopper Arm	3
5	AB01 3777	Gear - 32Z	3
6	AB01 3776	Gear - 30Z	3
7	A096 5412	Lower Feed Unit Harness	3
8	AA08 2046	Bushing - 6x12x6	9
9	AB01 3773	Gear - 18Z	3
10	A096 6306	Separation Drive Shaft	3
11	A096 6315	Release Solenoid	3
12	A096 6311	Release Lever	3
13	AA06 6216	Release Spring	3
14	AF02 0280	Driven Roller	3
15	AA08 0156	Bushing - M4	6
16	A096 6369	Vertical Transport Guide	3
17	AA06 3487	Spring -10mm	6
18	A096 6308	Separation Pressure Lever	3
19	AA06 0520	Lever Spring - 24.4mm	3
20	A096 6303	Separation Roller Stay	3
21	AB01 3729	Gear - 18Z	3
22	AA06 6189	Feed Sensor Spring	3
23	A096 6307	Separation Driver Shaft	3
24	A060 2617	Separation Torque Limiter	3
25	AF03 2023	Separation Roller	3
26	54472681	Snap Ring	3
27	A096 6321	Position Sensor Bracket	3
28	A096 6322	Position Sensor Feeler	3
29	AW02 0061	Photointerruptor - EE-SX4019-PI	3

ndex No.	Part No.	Description	Q'ty Per Assembly
101	0434 0060B	Philips Tapping Screw - M4x6	
102	0720 0060B	Retaining Ring - M6	
103	07423808	Ball Bearing - 8x16x5	
104	11026265	Connector - Red 8P	
105	11026250	Connector - 7P	
106	0720 0040B	Retaining Ring - M4	
107	08053145	Ball Bearing - 6x12x4mm	
108	0574 0040E	Hexagon Headless Set Screw - M4x4	
109	11050087	Clamp	
110	0314 0120B	Philips Pan Head Screw - M4x12	
111	0720 0030B	Retaining Ring - M3	
112	11026245	Connector - 2P	

17. BY-PASS FEED TABLE (A109)

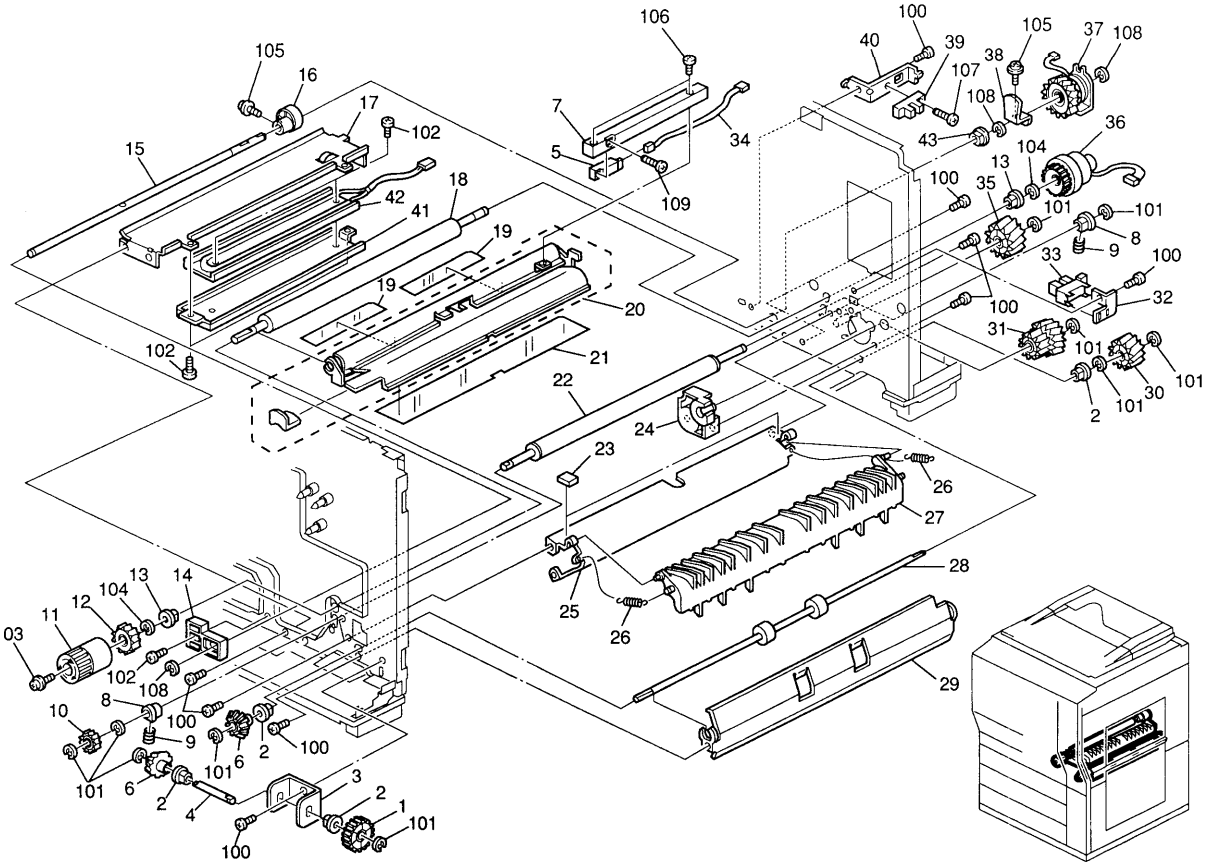


17. BY-PASS FEED TABLE (A109)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A1092721	Upper Stay Vertical Transport	1
2	A1092691	Oil Damper - GF.cm	1
3	A1092693	By-pass Feed Shaft	1
4	AA062272	Release Spring	1
5	A1092653	Pressure Arm - By-pass	1
6	AA06 2283	Spring	1
7	AW02 0066	Photointerruptor	1
8	A1092642	Paper End Sensor Bracket	1
9	A1092680	By-pass Pick-up Solenoid	1
10	54472927	Friction Pad - B	1
11	AA06 2271	Release Spring	1
12	A109 5322	By-pass Feed Harness -1	1
13	A1092665	Feed Roller Shaft - By-pass	1
14	AA08 3003	Bushing - 6x18x5mm	1
15	AX20 0096	Magnetic Clutch	1
16	A1092670	Feed Roller Housing - By-pass	1
17	A1092621	By-pass Feed Table	1
18	A1095361	By-pass Feed Harness -3	1
19	AB01 3846	Gear - 28Z	1
20	AA143074	Stepped Screw - M4x5	2
21	A1092675	Housing Cover	1
22	54472683	Gear - 18T	1
23	AA140522	Drive Shaft	1
24	54472684	Gear - 18T	1
25	A1092652	Separation Roller Shaft - By-pass	1
26	A060 2617	Separation Torque Limiter	1
27	AF03 2021	Separation Roller	1
28	54472681	Snap Ring	2
29	AF03 0021	Pick-up Roller	1
30	53533710	Gear - 18Z	1
31	A1092666	Pick-up Arm Holder	1
32	A1092661	Pick-up Arm - By-pass	1
33	54472706	Gear - 15T	1
34	AF03 1023	Paper Feed Roller	1
35	A1092662	Pick-up Roller Cover	1

ndex No.	Part No.	Description	Q'ty Per Assembly
36	A1092630	By-pass Feed Cover	1
37	AB01 3866	Front Side Fence Rack	1
38	A1092638	Rear Side Fence Rack	1
39	G011 3305	Gear - 16T	1
40	A1095526	By-pass Feed Table Sensor - 115V	1
40	A109 5126	By-pass Feed Table Sensor - 230V	1
41	A0105700	Sensor	1
42	AA002192	Decal Paper Size - LT	1
42	AA00 2175	Decal - Paper Size - A4	1
43	A1095323	By-pass Feed Harness - 2	1
44	A1092627	Paper Support Lever	1
45	A1092635	Rear Side Fence	1
46	A1092633	Front Side Fence	1
100	041 30082B	Tapping Screw - M3x8	
101	08053385	Bushing - 6mm	
102	0720 0040B	Retaining Ring - M4	
103	0965 3006B	Tapping Screw With Flat Washer M3x6	
104	041 40082B	Binding Self Tapping Screw - M4x8	
105	0720 0040E	Retaining Ring - M4	

18. PAPER REGISTRATION (A109)

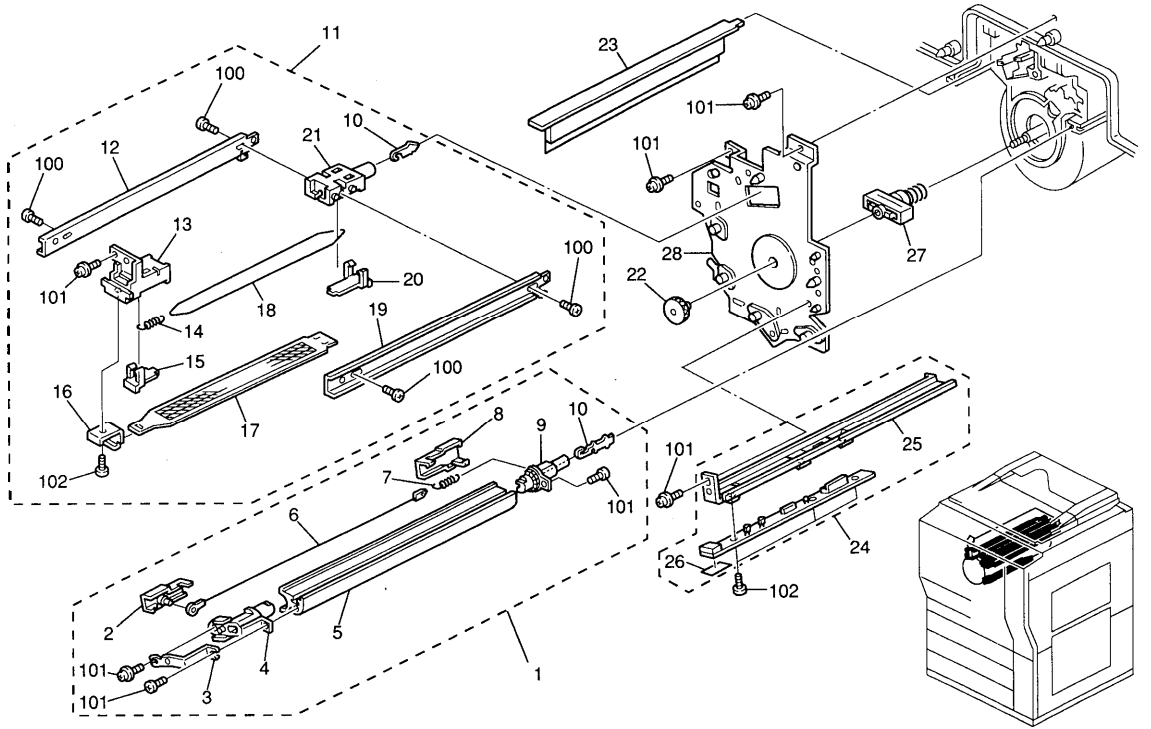


18. PAPER REGISTRATION (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	AB01 3852	Gear - 21Z	1
2	50530447	Bushing - 6mm	5
3	A1096502	Drive Gear Bracket	1
4	AA148402	Drive Shaft	1
5	A0105700	Sensor	2
6	AB01 6001	Gear - 14Z	2
7	A1092594	Registration Sensor Holder	1
8	AA08 0037	Bushing -6 mm	2
9	54422754	Spring - Registration Roller	2
10	54473922	Gear - 16T	1
11	AG05 0069	Registration Knob	1
12	AB01 3601	Gear - 20Z	1
13	AA08 2021	Bushing - 8x12x10mm	2
14	A1096285	Transfer Cam Positioning Plate	1
15	AA145217	Cam Shaft	1
16	A1096097	Release Cam	1
17	A1096286	Paper Transfer Unit Rail	1
18	AF02 0311	Upper Registration Roller	1
19	A1092588	Upper Guide - Registration	2
20	A1092582	Upper Guide Plate - Registration	1
21	A1092589	Large Guide - Registration	1
22	AF02 1049	Lower RegistrationRoller	1
23	AG07 0008	Magnet Catch	2
24	A109 2610	Gear Holder	1
25	A1092575	Lower Guide Plate - Registration	1
26	59213104	Spring - Toner End Lever	2
27	A109 2571	Registration Guide Plate	1
28	AF02 0312	Relay Roller	1
29	A109 2574	Relay Guide Plate	1
30	AB01 3844	Gear - 30Z	1
31	AB01 7322	Gear - 34Z/41Z	1
32	A109 2711	Sensor Bracket - Registration Guide	1
33	AW02 0056	Photointerruptor - EE-SX4235A-P1	1
34	A109 5311	Sensor Relay Harness	1
35	AB01 3848	Gear - 12Z	1

ndex No.	Part No.	Description	Q'ty Per Assembly
36	AX21 0040	Magnetic Clutch	1
37	AX21 0041	Spring Clutch	1
38	A1096298	Sensor Feeler - Transfer Roller	1
39	AW02 0062	Photointerruptor - EE-SX4019-PI5	1
40	A109 4714	Position Sensor Bracket	1
41	A1096284	Heat Sink	1
42	AX40 0008	Heater -115V 18W	1
42	AX40 0009	Heater - 220V 18W	1
43	AA08 0166	Bushing - 8mm	1
100	0434 0080B	Philips Tapping Screw - M4x8	
101	0720 0040B	Retaining Ring - M4	
102	0354 0060B	Screw - M4X6	
103	0951 4008B	Philips Screw With Washer - M4x8	
104	0720 0060B	Retaining Ring - M6	
105	0951 3006B	Philips Screw With Flat Washer - M3x6	
106	0314 0060B	Philips Pan Head Screw - M4x6	
107	0354 0100B	Screw - M4X10	
108	0720 0050B	Retaining Ring - M5	
109	0313 o1ooB	Philips Pan Head Screw - M3x10	

19. AROUND THE DRUM (A109)

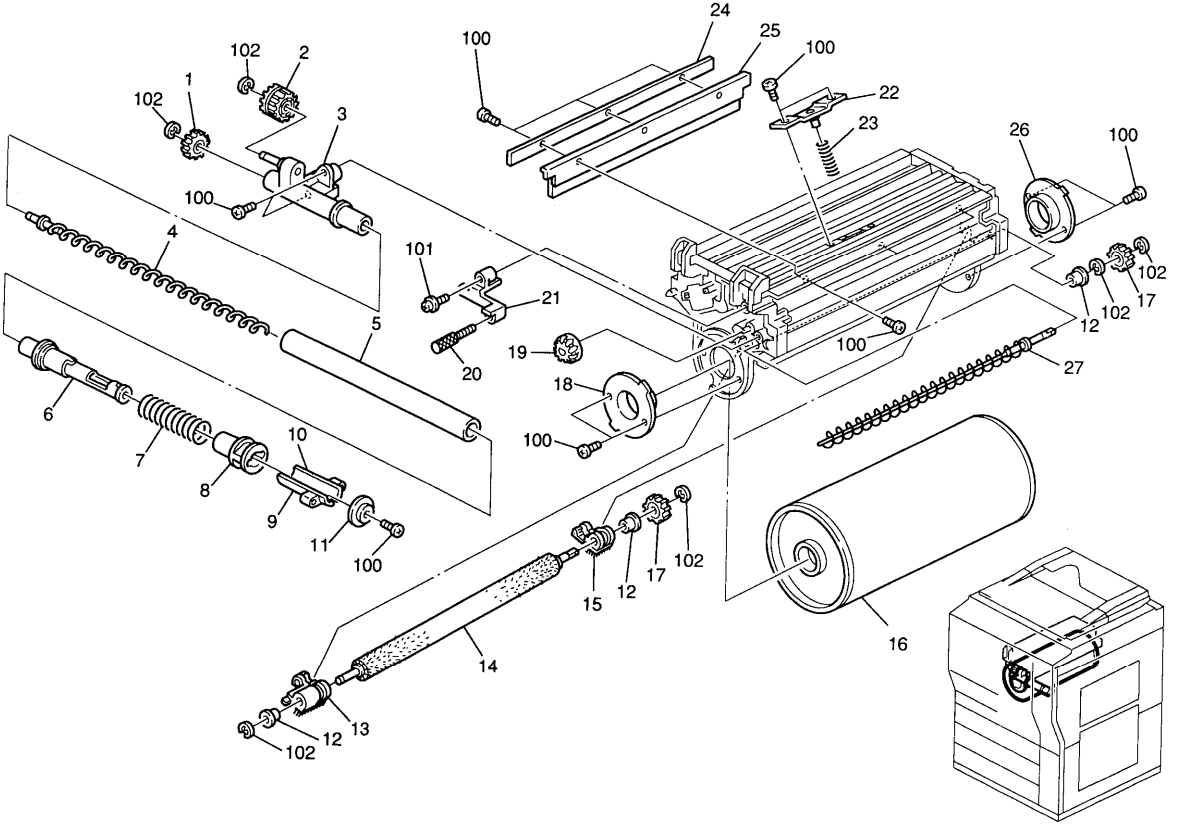


19. AROUND THE DRUM (A109)

Index No.	Part No.	Description	Q'ty Per Assembly
1	AD00 4071	Pre - Cleaning Corona Unit	1
2	AD02 2293	Front End Block Cover - Pre Cleaning	1
3	A1092369	Grounding Plate - Pre - Cleaning	1
4	AD02 2291	Front End Block - Pre Cleaning	1
5	AD02 3086	Corona Casing - Pre Cleaning	1
6	AD02 0056	PCC Wire	1
7	54422108	Spring - Corona Wire	1
8	AD02 2294	Rear End Block Cover - Pre Cleaning	1
9	AD02 2292	Rear End Block	1
10	AD02 4025	Corona Wire Terminal	2
11	AD00 4070	Charge Corona Unit	1
12	AD02 3085	Right Casing - Charge	1
13	AD02 2287	Front End Block - Charge	1
14	G004 3762	Corona Wire Spring	1
15	AD02 2289	Front End Block Cover - Charge	1
16	A109 2351	Spring Plate - Grid	1
17	AD02 0055	Charge Corona Grid	1
18	AD02 0054	Charge Corona Wire	1
19	AD02 3084	Left Casing - Charge	1
20	AD02 2290	Rear End Block Cover - Charge	1
21	AD02 2288	Rear End Block - Charge	1
22	A1092287	Drum Flange Knob	1
23	A1092375	Quenching Lamp	1
24	A109 5192	ID Sensor Board	1
25	A109 2371	ID Sensor Stay	1
26	AA15 0360	Seal - 13x20	1
27	A109 2291	Knob Screw	1
28	A109 2281	Drum Flange	1

Index No.	Part No.	Description	Q'ty Per Assembly
100	0433 0062B	Tapping Screw - M3 x 6 mm	
101	0314 0080B	Philips Pan Head Screw - M4x8	
102	0313 0060B	Philips Pan Head Screw - M3x6	

20. DRUM UNIT 1 (A109)

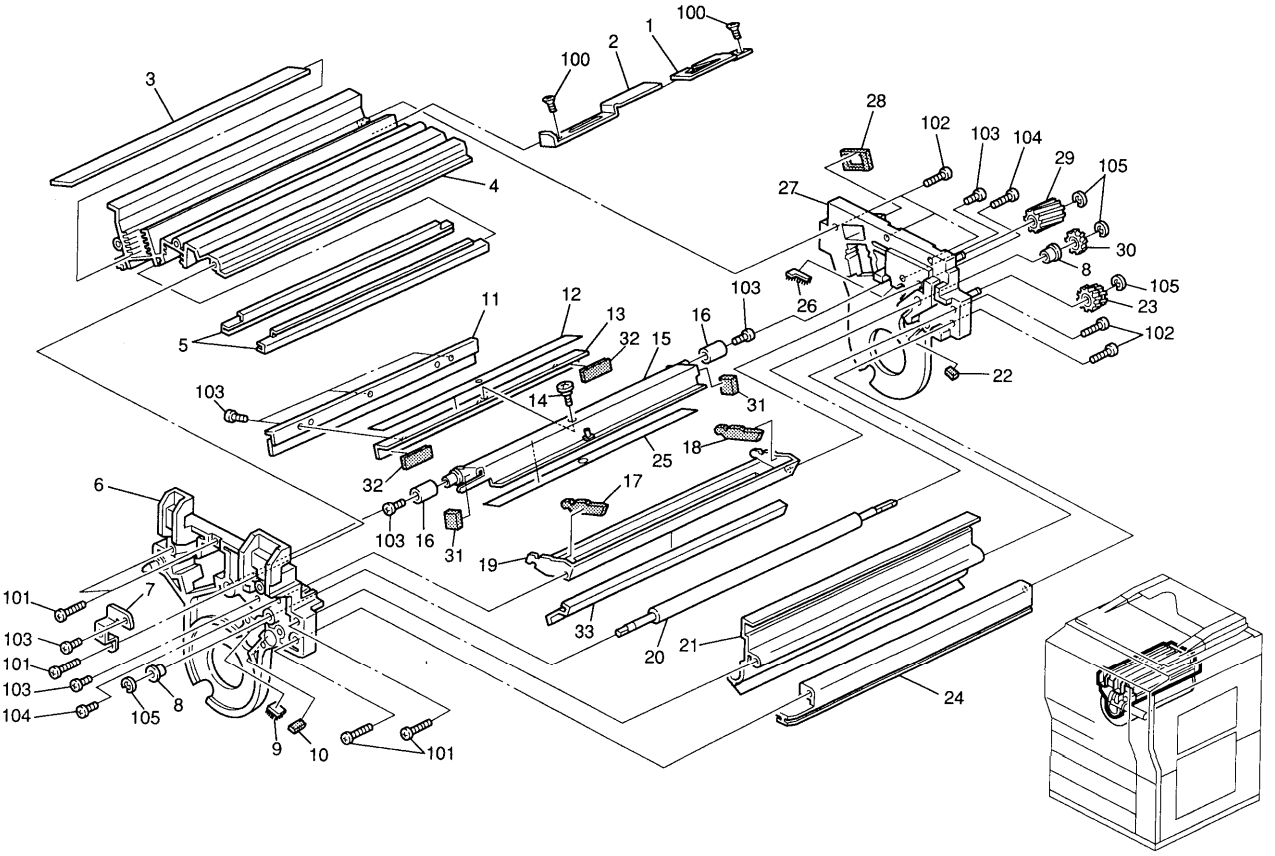


20. DRUM UNIT 1 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A1093635	Gear - 18Z	1
2	A1093631	Gear - 18Z/20Z	1
3	A1093629	Toner Collection Joint	1
4	A1093632	Toner Collection Auger	1
5	A1093645	Toner Collection Tube	1
6	A1093637	Toner Collection Pipe	1
7	A1093642	Pressure Spring	1
8	A1093643	Joint Shutter - Toner Collection	1
9	A1093639	Right Shutter - Toner Collection	1
10	A1093641	Left Shutter - Toner Collection	1
11	A1093644	Shutter Stopper	1
12	A1093615	Bushing - Cleaning Brush	3
13	A1093605	Front Side Holder - Cleaning Brush	1
14	A1093603	Cleaning Brush	1
15	A109 3610	Rear Side Holder - Cleaning Brush	1
16	A109 9510	OPC Drum	1
17	A109 3616	Gear - 16Z	2
18	A1093652	Front Drum Flange	1
19	A1093651	Gear - 20Z	1
20	A1093650	Knob Screw	1
21	A1093601	Blade Stopper Lever	1
22	A1093574	Pressure Plate - Cleaning Brush	1
23	A1093577	Pressure Spring - Cleaning Brush	1
24	A1093626	Blade Holder - Bias Roller	1
25	A1093623	Bias Roller Blade	1
26	A1093653	Rear Drum Flange	1
27	A1093618	Toner Collection Coil	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0314 0060B	Philips Pan Head Screw - M4x6	
101	0951 4006B	Philips Screw With Washer - M4x6	
102	0720 0040B	Retaining Ring - M4	

21. DRUM UNIT 2 (A109)

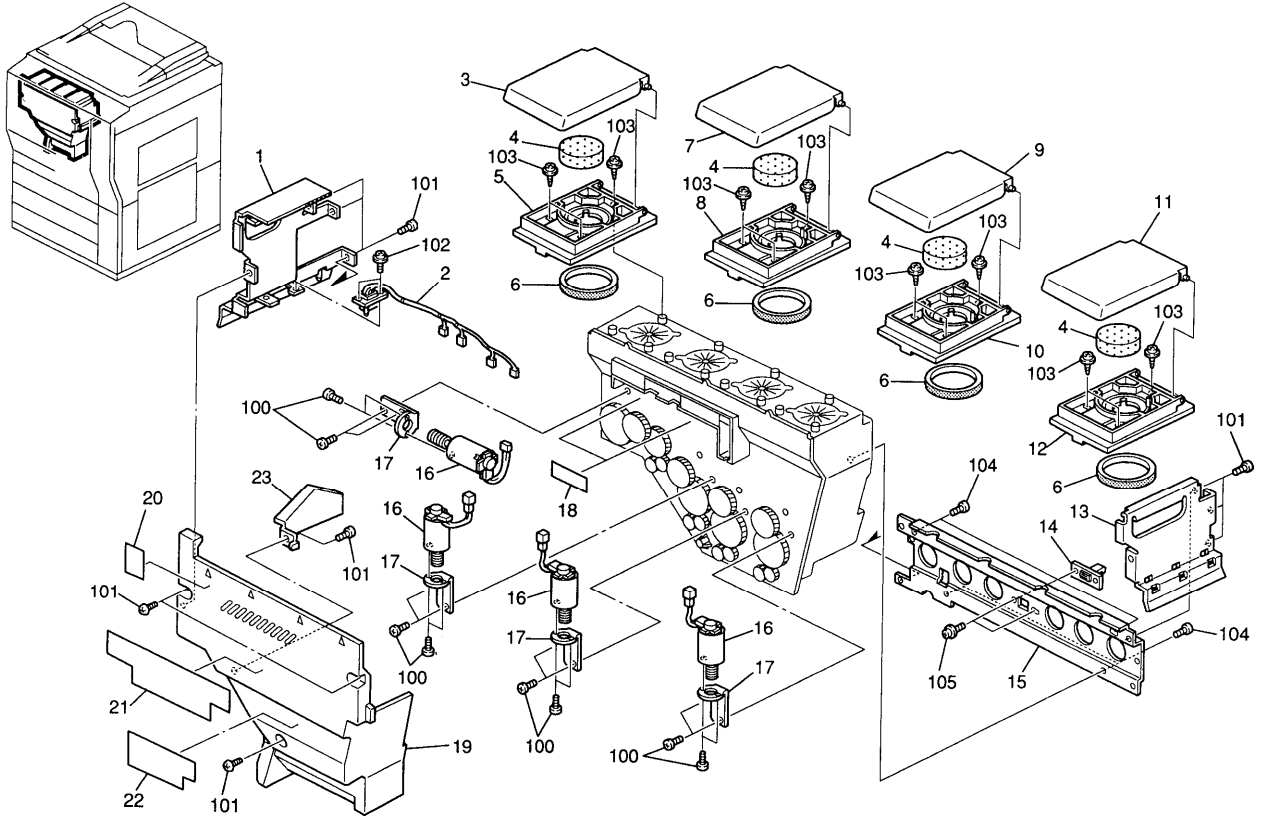


21. DRUM UNIT 2 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A1093570	Lower Louver	1
2	A109 3571	Middle Louver	1
3	A109 3572	Upper Louver	1
4	A1093569	Charge Corona Housing	1
5	A1093573	Guide Rail - Charge Corona	2
6	A1093553	Front Side Plate - Drum	1
7	A1093558	Drum Grounding Plate	1
8	A1093615	Bushing - Cleaning Brush	2
9	A1093557	Seal - 5x14x14	1
10	A1093556	Seal - 4x5x10	1
11	A109 3598	Cleaning Blade	1
12	A1093596	Seal - 16x323	1
13	A1093595	Cleaning Blade Holder	1
14	A1093597	Stepped Screw-M4	1
15	A1093589	Cleaning Bracket	1
16	A1093648	Spacer-6x8x14	2
17	A1093585	Front Sidereal- Cleaning Brush Cover	1
18	A1093586	Rear Seal -Cleaning Brush Cover	1
19	A1093584	Cleaning Brush Cover	1
20	A1093617	Cleaning Brush Bias Roller	1
21	A109 3579	Right Side Stay - Drum Cleaning	1
22	A1093565	Seal - 3x4x5	1
23	A1093647	Gear - 16/17Z	1
24	A109 3582	Pre-cleaning Corona Rail	1
25	A109 3593	Seal - 21x323	1
26	A1093566	Seal - 5x10X14	1
27	A1093560	Rear Side Plate - Drum	1
28	A1093567	Duct Seal - 3x22x27	1
29	A1093646	Gear - 16Z	1
30	A1093616	Gear - 16Z	1
31	A109 3659	Seal - 3x9x9	2
32	A109 3660	Seal - 3x8x18	2
33	A109 3661	Cover Bracket - Cleaning Brush	1

Index No.	Part No.	Description	Q'ty Per Assembly
100	0972 4006A	Philips Polycarbonate Screw - M4x6	
101	0314 0200B	Philips Pan Head Screw - M4x20	
102	0314 0160B	Philips Pan Head Screw - M4x16	
103	0313 0060B	Philips Pan Head Screw - M3x6	
104	0313 0120B	Philips Pan Head Screw - M3x12	
105	0720 0040B	Retaining Ring - M4	

22. TONER TANK UNIT 1 (A109)

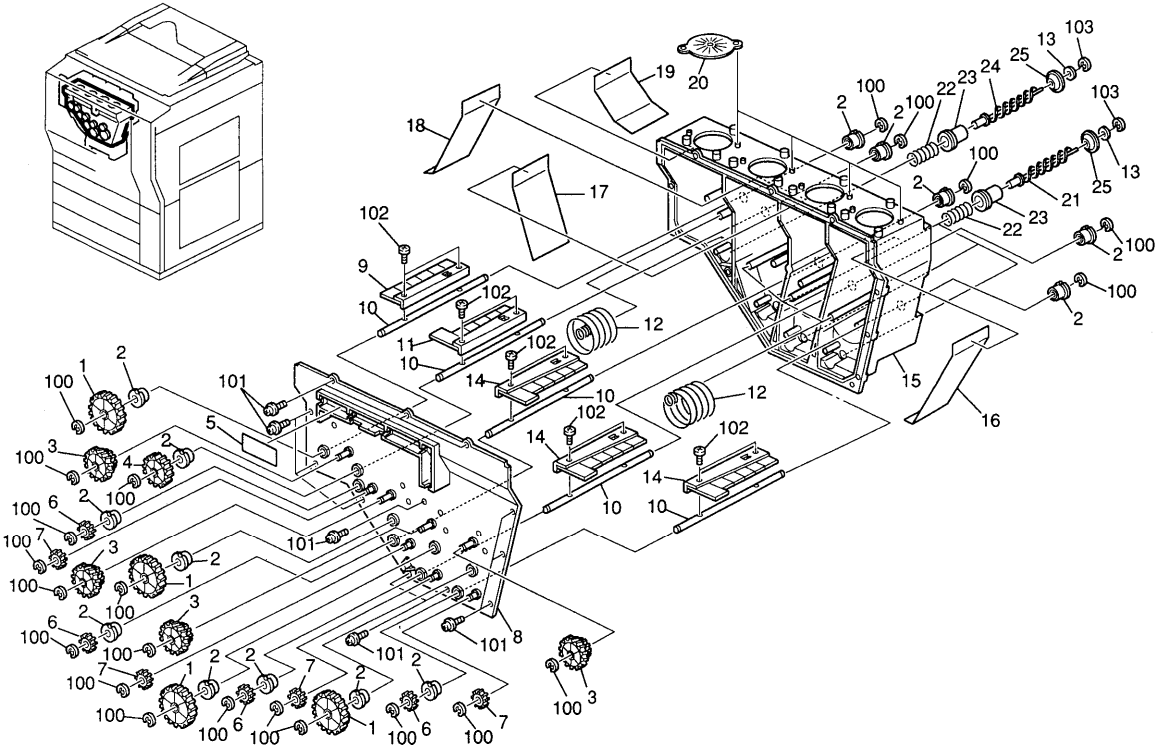


22. TONER TANK UNIT 1 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A1093420	Left Side Plate - Toner Tank	1
2	A1095306	Toner Tank Unit Harness	1
3	A1093406	Top Cover Bottle - Black	1
4	AA15 1875	Seal - 20x40	4
5	A1093401	Toner Bottle Guide - Black	1
6	AA15 1829	Seal -72	4
7	A1093407	Top Cover Bottle - Cyan	1
8	A1093404	Toner Bottle Guide - Cyan	1
9	A1093408	Top Cover Bottle - Magenta	1
10	A1093402	Toner Bottle Guide - Magenta	1
11	A1093409	Top Cover Bottle - Yellow	1
12	A1093403	Toner Bottle Guide - Yellow	1
13	A1093428	Right Side Plate - Toner Tank	1
14	A049 3292	Tank Unit Stopper	1
15	A1093430	Rear Side Plate - Toner Tank	1
16	A1095401	Toner Supply Motor	4
17	A1093395	Toner Supply Motor Bracket	4
18	AA15 0351	Sheet - 25x57	2
19	A109 3410	Toner Tank Cover	1
20	A092 1393	Decal - Adding Toner	1
21	A109 1550	Decal - Adding Toner	1
22	A109 1551	Decal - Misfeed Removal C	1
23	A109 3112	Development Support Cam	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0951 3006B	Philips Screw With Flat Washer-M3x6	
101	0314 0060B	Philips Pan Head Screw - M4x6	
102	0952 3008B	Screw - M3X8	
103	0414 0082B	Binding Self Tapping Screw - M4x8	
104	0314 0080B	Philips Pan Head Screw - M4x8	
105	0951 3005B	Philips Screw With Flat Washer M3x5	

23. TONER TANK UNIT 2 (A109)

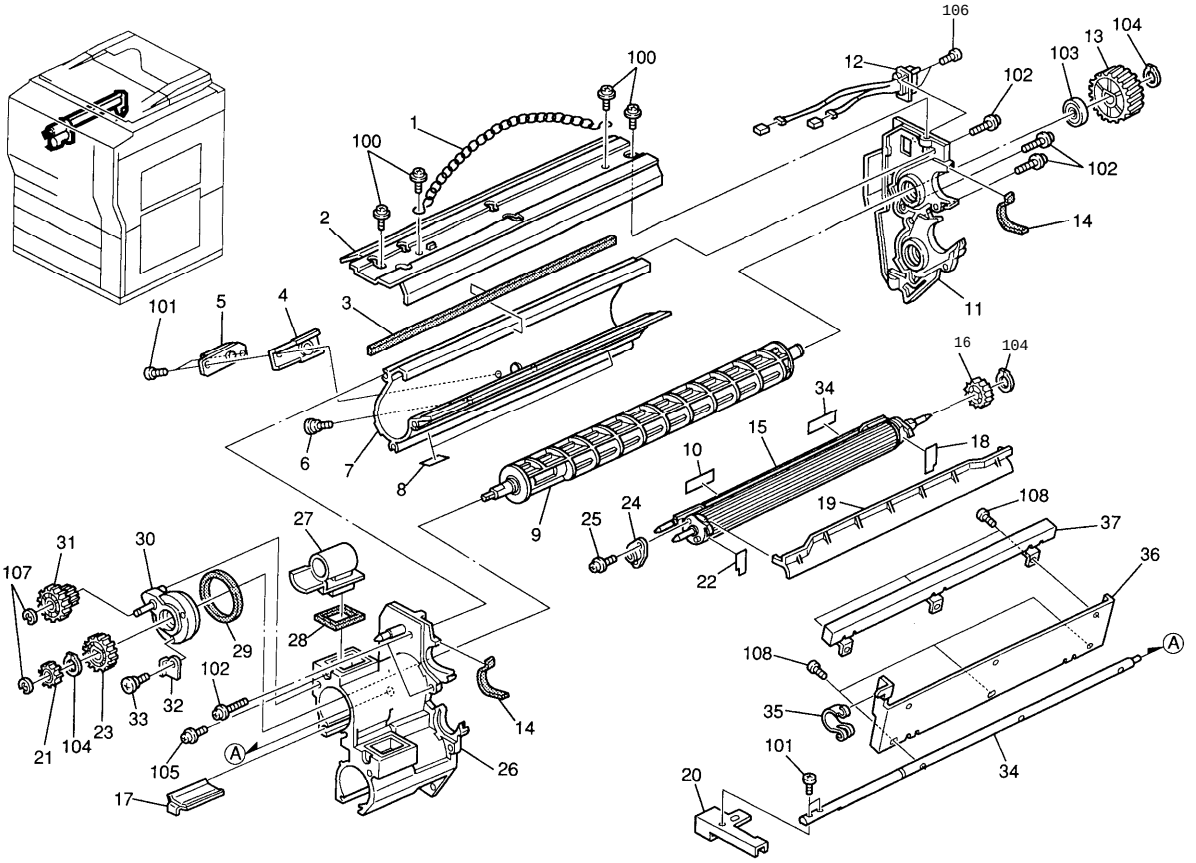


23. TONER TANK UNIT 2 (A109)

Index No.	Part No.	Description	Q'ty Per Assembly
1	AB01 3810	Gear - 52Z	4
2	54473200	Bushing - 6mm	14
3	AB01 7306	Gear - 18Z/40Z	4
4	AB01 3811	Gear - 40Z	1
5	AA15 0351	Sheet - 25x57	1
6	AB01 3355	Gear - 18Z	4
7	52052612	Gear - 19T	4
8	A1093355	Front Casing - Toner Tank	1
9	AD03 9045	Large Agitator - BK	1
10	AA140510	Drive Shaft	5
11	AD03 9048	Small Agitator - BK	1
12	AA06 3363	Spring	4
13	A1093393	Spacer - Toner Supply Coil	2
14	AD03 9042	Agitator - Color	3
15	A1093352	Rear Casing - Toner Tank	1
16	A109 3383	Toner Vibrating Mylar - Yellow	1
17	A1093382	Toner Vibrating Mylar - Magenta	1
18	A109 3381	Toner Vibrating Mylar - Cyan	1
19	A1093380	Toner Vibrating Mylar - Black	1
20	AA150343	Toner Entrance Seal	4
21	AD03 7036	Toner Supply Coil - Color	3
22	AA06 3361	Spring	4
23	A1093390	Toner Supply Cap	4
24	AD03 7039	Toner Supply Coil - Black	1
25	AA152232	Packing -18	4

Index No.	Part No.	Description	Q'ty Per Assembly
100	0720 0040B	Retaining Ring - M4	
101	0951 3008B	Philips Screw With Flat Washer - M3x8	
102	0313 0080B	Philips Pan Head Screw - M3x8	
103	0720 0030E	Retaining Ring - M3	

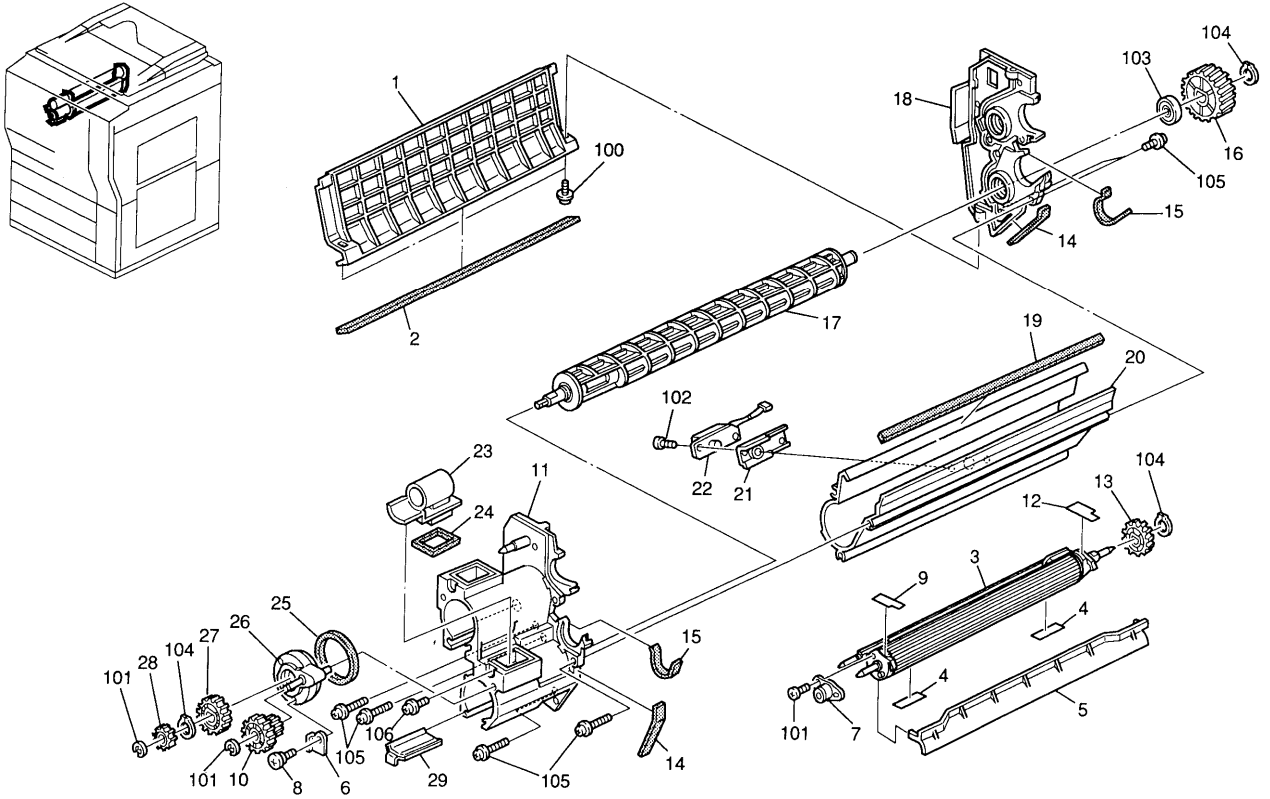
24. DEVELOPMENT UNIT - BLACK (A109)



24. DEVELOPMENT UNIT - BLACK (A109)

Index No.	Part No.	Description	Q'ty Per Assembly
*	AD00 1032	Development Unit - B/C	1
1	52051336	Front Cover Chain	1
2	A1093089	Development Unit Guide - Black	1
3	AA15 1849	Seal - 5x8x342	1
4	A1093065	Spacer - Toner Density Sensor	1
5	AW23 0007	Toner Density Sensor	1
6	68032273	Stepped Screw - M4	1
7	A1093059	Development Casing - Black	1
8	A1093063	Black Development Seal	2
9	A1093066	Mixing Paddle Roller - B/C	1
10	A1093086	Development Casing Seal	2
11	A1093054	Rear Side Plate - B/C	1
12	A1095305	Development Unit Harness	1
13	AB01 3814	Gear -402	1
14	AA15 1842	Seal - 1x5x55.5	2
15	A1093073	Development SleeveAss'y - Black	1
16	AB01 1342	Gear -302	1
17	A1093102	Toner Collection Cover	1
18	AA152320	Seal - 16x36	1
19	A1093082	Development Sleeve Cover	1
20	A1093108	Development Support Lever	1
21	AB01 1149	Gear -142	1
22	AA15 2319	Seal - 16x36	1
23	AB01 1148	Gear -282	1
24	A1093085	Positioning Adjuster	1
25	54036246	Stepped Screw - Cleaning	1
26	A109 3051	Front Side Plate - B/C	1
27	A1093100	Toner Supply Receptacle	1
28	AA15 1846	Seal - 2x27x36	1
29	AA15 1847	Seal - 4x47	1
30	A1093068	Paddle Flange	1
31	AB01 7330	Gear - 202/342	1
32	A1093070	Paddle Flange Stopper	1
33	AA143358	Stepped Screw - M4x3	1
34	A109 3107	Development Support Shaft	1
35	A1093109	Lock - Spring	1
36	A1093106	Development Support Plate	1
37	A1093111	Spring Plate	1
100	0354 0060B	Screw - M4X6	
101	0313 0060B	Philips Pan Head Screw - M3x6	
102	09524014B	Screw - M4X14	
103	08053449	Ball Bearing - M12x24x6	
104	0725 0120E	Retaining Ring C - M12	
105	09524010B	Screw - M4X10	
106	0413 0102B	Tapping Screw - M3x10	
107	0720 0040B	Retaining Ring - M4	
108	03130040B	Philips Pan Head Screw - M3x4	

25. DEVELOPMENT UNIT - CYAN (A109)

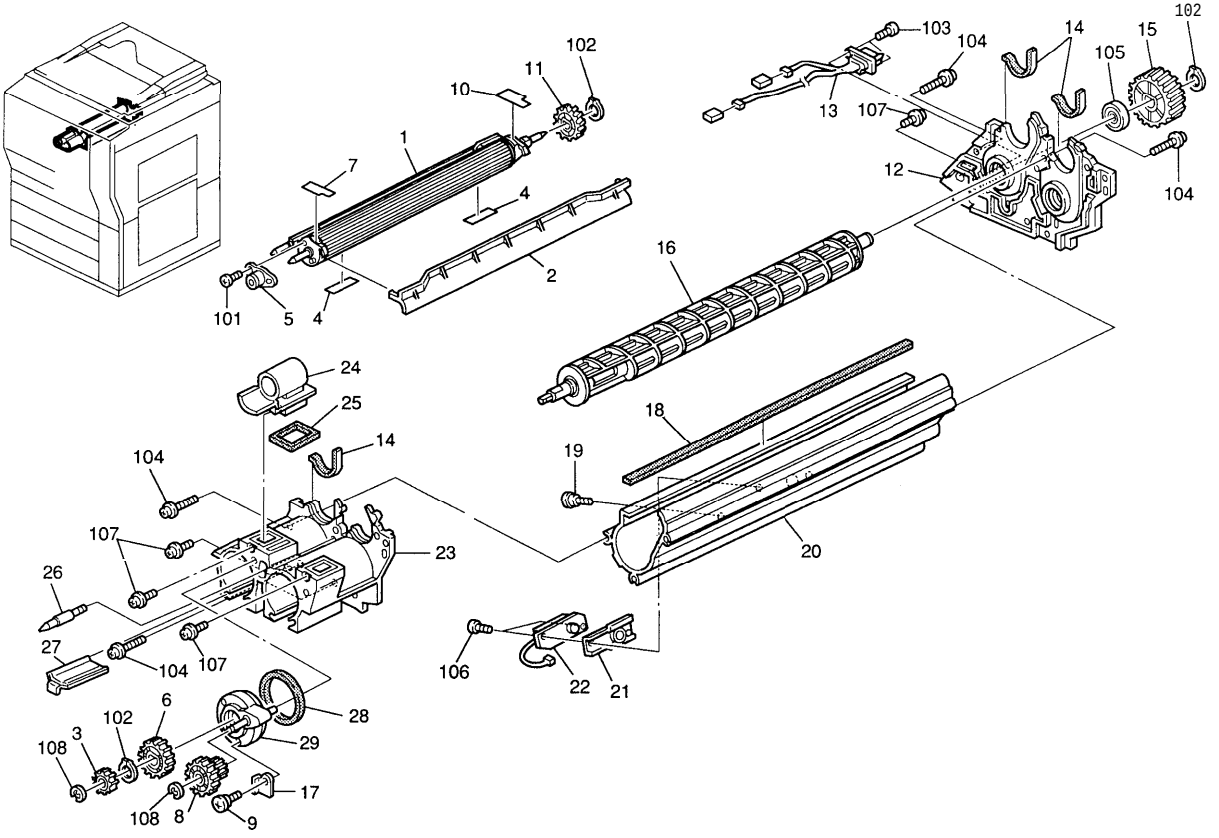


25. DEVELOPMENT UNIT - CYAN (A109)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A1093095	Development Unit Cover - B/C	1
2	AA15 1845	Seal - 4x8x333.5	1
3	A1093074	Development Sleeve Ass'y - Cyan	1
4	A1093086	Development Casing Seal	2
5	A1093082	Development Sleeve Cover	1
6	A1093070	Paddle Flange Stopper	1
7	A1093085	Positioning Adjuster	1
8	AA143285	Shoulder Screw - M4	1
9	AA15 2319	Seal - 16x36	1
10	AB01 7330	Gear - 20Z/34Z	1
11	A109 3051	Front Side Plate - B/C	1
12	AA152320	Seal - 16x36	1
13	AB01 1342	Gear - 30Z	1
14	AA151843	Seal - 4x7x59.5	2
15	AA151842	Seal - 1x5x55.5	2
16	AB01 3814	Gear - 40Z	1
17	A1093066	Mixing Paddle Roller - B/C	1
18	A1093054	Rear Side Plate - B/C	1
19	AA151849	Seal - 5x8x342	1
20	A1093062	Development Casing - Cyan	1
21	A1093065	Spacer - Toner Density Sensor	1
22	AW23 0007	Toner Density Sensor	1
23	A109 3100	Toner Supply Receptacle	1
24	AA15 1846	Seal - 2x27x36	1
25	AA151847	Seal - 4x47	1
26	A1093068	Paddle Flange	1
27	AB01 1148	Gear - 28Z	1
28	AB01 1149	Gear - 14Z	1
29	A1093102	Toner Collection Cover	1

Index No.	Part No.	Description	Q'ty Per Assembly
100	0354 0060B	Screw - M4X6	
101	0720 0040B	Retaining Ring - M4	
102	0313 0060B	Philips Pan Head Screw - M3x6	
103	08053449	Ball Bearing - M12x24x6	
104	0725 0120E	Retaining Ring C - M12	
105	09524014B	Screw - M4X14	
106	09524010B	Screw - M4X10	

26. DEVELOPMENT UNIT - MAGENTA (A109)

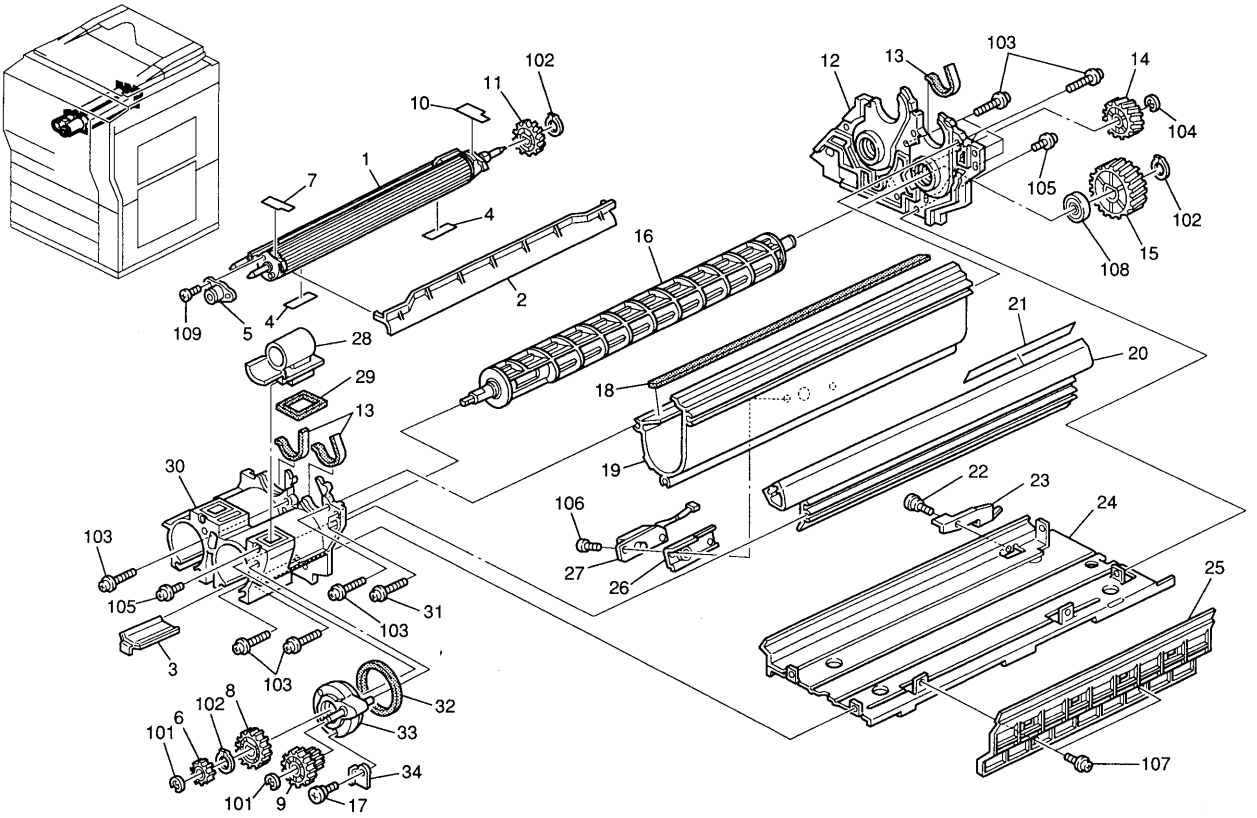


26. DEVELOPMENT UNIT - MAGENTA (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
*	ADoo 1033	Development Unit - M/Y	1
1	A1093214	Development Sleeve - M/Y	1
2	A1093082	Development Sleeve Cover	1
3	AB01 1149	Gear - 14Z	1
4	A1093086	Development Casing Seal	2
5	A1093085	Positioning Adjuster	1
6	AB01 1148	Gear - 28Z	1
7	AA15 2319	Seal - 16x36	1
8	AB01 7330	Gear - 20Z/34Z	1
9	AA143285	Shoulder Screw - M4	1
10	AA152320	Seal - 16x36	1
11	AB01 1342	Gear - 30Z	1
12	A1093204	Rear Side Plate - M/Y	1
13	A1095305	Development Unit Harness	1
14	AA15 1842	Seal - 1x5x55.5	3
15	AB01 3814	Gear - 40Z	1
16	A1093067	Mixing Paddle Roller	1
17	A1093070	Paddle Flange Stopper	1
18	AA15 1849	Seal - 5x8x342	1
19	68032273	Stepped Screw - M4	1
20	A1093209	Development Casing - Magenta	1
21	A1093065	Spacer - Toner Density Sensor	1
22	AW23 0007	Toner Density Sensor	1
23	A1093201	Front Side Plate - M/Y	1
24	A1093100	Toner Supply Receptacle	1
25	AA15 1846	Seal - 2x27x36	1
26	AA14 3418	Positioning Pin	1
27	A109 3102	Toner Collection Cover	1
28	AA15 1847	Seal - 4x47	1
29	A1093068	Paddle Flange	1

ndex No.	Parl No.	Description	Q'ty Per Assembly
101	0313 0040B	Philips Pan Head Screw - M3x4	
102	0725 0120E	Retaining Ring C -M12	
103	0413 0102B	Tapping Screw - M3x10	
104	09524014B	Screw - M4X14	
105	08053449	Ball Bearing - M12x24x6	
106	0313 0060B	Philips Pan Head Screw - M3x6	
107	09524010B	Screw - M4X10	
108	0720 0040B	Retaining Ring - M4	

27. DEVELOPMENT UNIT - YELLOW (A109)

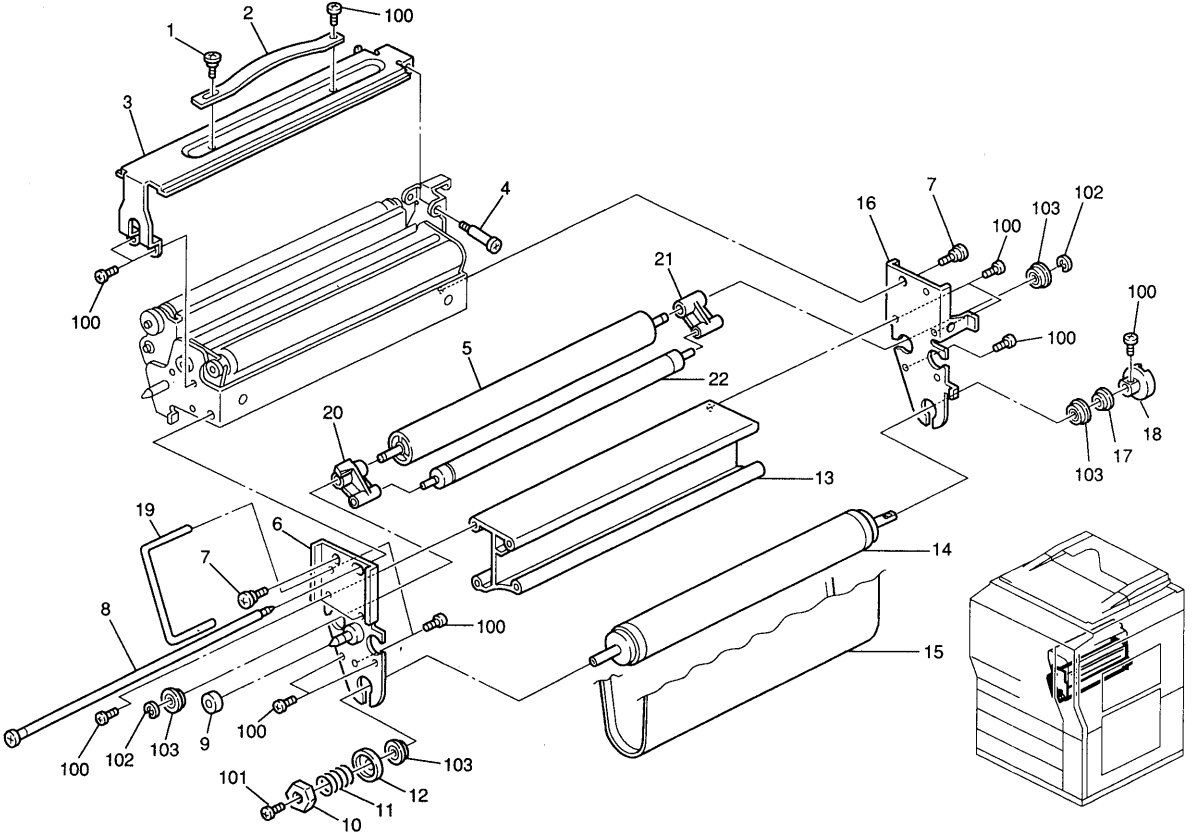


27. DEVELOPMENT UNIT - YELLOW (A109)

Index No.	Part No.	Description	Q'ty Per Assembly
1	A109 3214	Development Sleeve - M/Y	1
2	A1093082	Development Sleeve Cover	1
3	A109 3102	Toner Collection Cover	1
4	A1093086	Development Casing Seal	2
5	A1093085	Positioning Adjuster	1
6	AB01 1149	Gear - 14Z	1
7	AA15 2319	Seal - 16x36	1
8	AB01 1148	Gear - 28Z	1
9	AB01 7330	Gear - 20Z/34Z	1
10	AA152320	Seal - 16x36	1
11	AB01 1342	Gear - 30Z	1
12	A109 3204	Rear Side Plate - M/Y	1
13	AA151842	Seal - 1x5x55.5	3
14	AB01 3815	Gear - 30Z	1
15	AB01 3814	Gear - 40Z	1
16	A109 3067	Mixing Paddle Roller	1
17	AA143285	Shoulder Screw - M4	1
18	AA15 1849	Seal - 5x8x342	1
19	A109 3212	Development Casing - Yellow	1
20	A1093226	ID Sensor Rail	1
21	AA150345	Seal - 19.5x170	1
22	AA143358	Stepped Screw - M4x3	1
23	A109 3219	Development Unit Stopper - M/Y	1
24	A109 3216	Base Plate - M/Y	1
25	A1093222	Development Unit Cover - M/Y	1
26	A1093065	Spacer - Toner Density Sensor	1
27	AW23 0007	Toner Density **Sensor**	1
28	A1093100	Toner Supply Receptacle	1
29	AA151846	Seal - 2x27x36	1
30	A1093201	Front Side Plate - M/Y	1
31	53501754	Stud - M5x4	2
32	AA15 1847	Seal - 4x47	1
33	A1093068	Paddle Flange	1
34	A1093070	Paddle Flange Stopper	1

Index No.	Part No.	Description	Q'ty Per Assembly
101	0720 0040B	Retaining Ring - M4	
102	0725 0120E	Retaining Ring C -M12	
103	09524014B	Screw - M4X14	
104	0720 0060B	Retaining Ring - M6	
105	09524010B	Screw - M4X10	
106	0313 0060B	Philips Pan Head Screw - M3x6	
107	0354 0060B	Screw - M4X6	
108	08053449	Ball Bearing - M12x24x6	
109	0313 0040B	Philips Pan Head Screw - M3x4	

28. TRANSFER BELT UNIT 1 (A109)

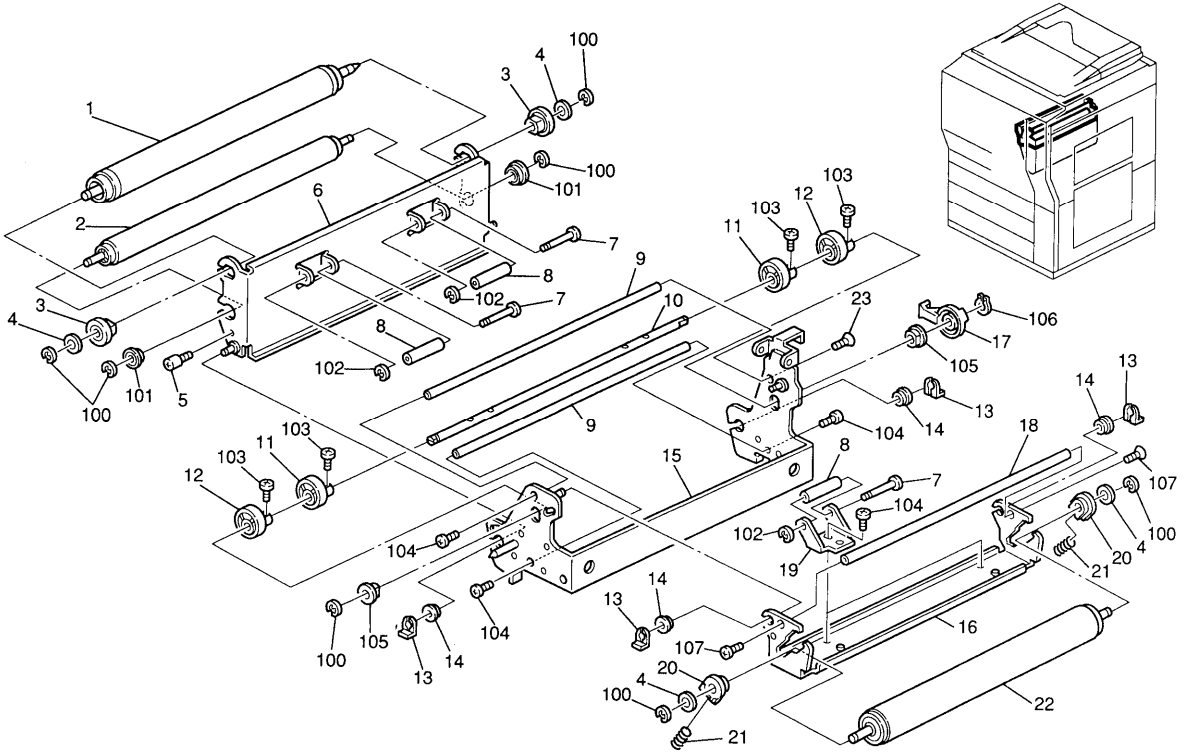


28. TRANSFER BELT UNIT 1 (A109)

ndex No.	Parl No.	Description	Q'ty Per Assembly
1	59192201	Shoulder Screw - M4	1
2	AG05 1106	Transfer Belt Unit Band	1
3	A1096124	Transfer Unit Grip Plate	1
4	AA14 3709	Stepped Screw - M4	1
5	A1096069	Belt Cleaning Roller	1
6	A1096055	Front Side Plate - Transfer	1
7	C201 5125	Shoulder Screw - M4	2
8	A1096126	Transfer Unit Position Shaft	1
9	AA161097	Cushion - 6.5x14	1
10	A1096087	Spring Holder Cover - Transfer	1
11	AA06 3493	Pressure Spring	1
12	A1096089	Spring Holder - Transfer	1
13	A109 6060	Transfer Unit Stay	1
14	A1096063	Belt Drive Roller	1
15	A1096130	Transfer Belt	1
16	A1096058	Rear Side Plate - Transfer	1
17	AA13 2167	Spacer	1
18	A109 6082	Transfer Roller Joint	1
19	AG05 1100	Transfer Belt Unit Handle	1
20	A1096155	Cleaning Roller Front Bracket	1
21	A109 6156	Cleaning Roller Rear Bracket	1
22	A1096157	Belt Support Roller	1

Index No.	Part No.	Description	Q'ty Per Assembly
100	0354 0060B	Screw - M4X6	
101	0951 4008B	Philips Screw With Washer - M4x8	
102	0720 0060B	Retaining Ring - M6	
103	08053482	Ball Bearing - 8x14x3.5	

29. TRANSFER BELT UNIT 2 (A109)

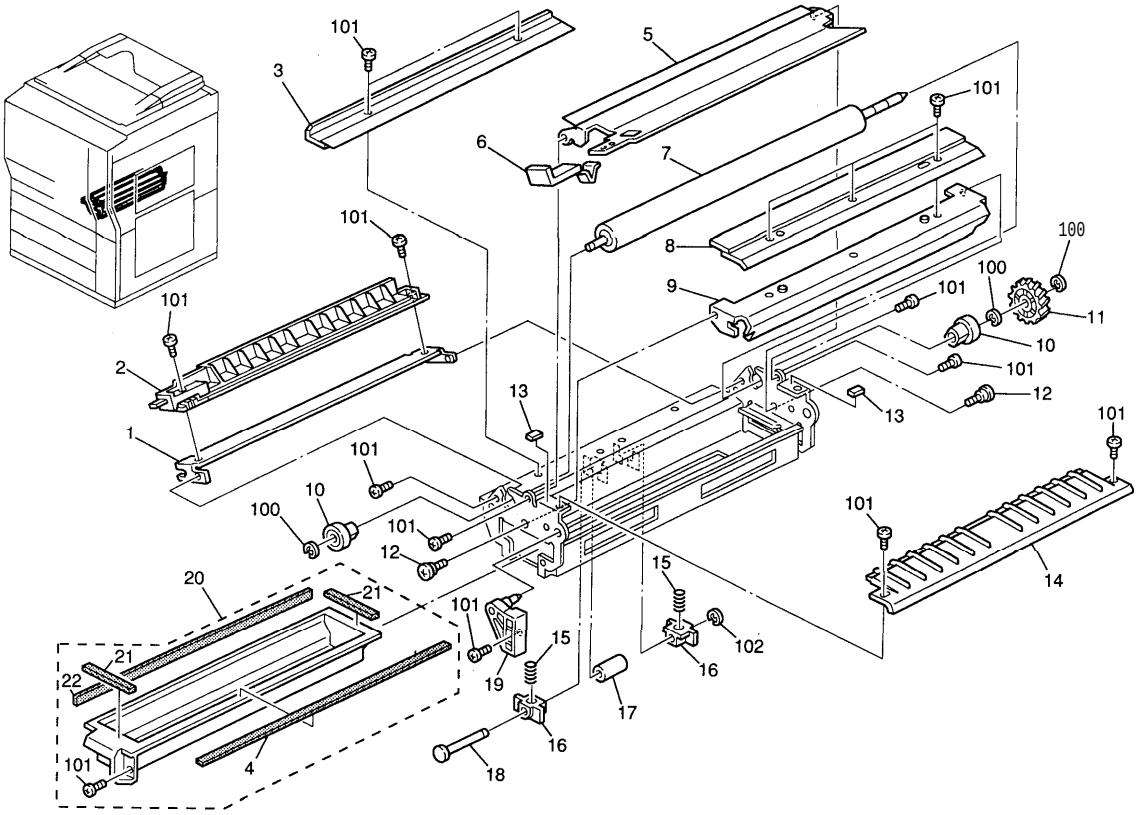


29. TRANSFER BELT UNIT 2 (A109)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A1096000	Transfer Belt Unit	1
1	A109 6105	Belt Bias Roller	1
2	A1096110	Transfer Idle Roller	1
3	AA08 4045	Bearing Holder	2
4	AA13 2172	Spacer	4
5	54091855	Mounting Pin	1
6	A109 6101	Bias Roller Bracket	1
7	AA14 8391	Pin - 4x36	4
8	AA13 2166	Roller	4
9	AA14 1081	Support Stay	2
10	A1096096	Cam Shaft	1
11	A1096097	Release Cam	2
12	A1096098	Tension Cam	2
13	52062686	Snap Ring	4
14	AA08 1003	Bushing - 5x7x3.8mm	4
15	A1096091	Transfer Unit Frame	1
16	A1096115	Tension Roller Bracket	1
17	A1096099	Cam Lever	1
18	AA141082	Support Stay	1
19	A1096116	Tension Support Roller Holder	2
20	AA08 4044	Bearing Holder	2
21	AA06 3491	Pressure Spring	2
22	A1096118	Belt Tension Roller	1
23	58752088	Shoulder Screw - M4	1

Index No.	Part No.	Description	Q'ty Per Assembly
100	0720 0060B	Retaining Ring - M6	
101	08053482	Ball Bearing - 8x14x3.5	
102	0720 0030B	Retaining Ring - M3	
103	0951 3006B	Philips Screw With Flat Washer - M3x6	
104	0354 0060B	Screw - M4x6	
105	08053385	Bushing - 6mm	
106	0727 0080E	Retaining Ring - M8	
107	0324 0060B	Philips Sunken Head Screw - M4x6	

30. TRANSFER ROLLER UNIT (A109)

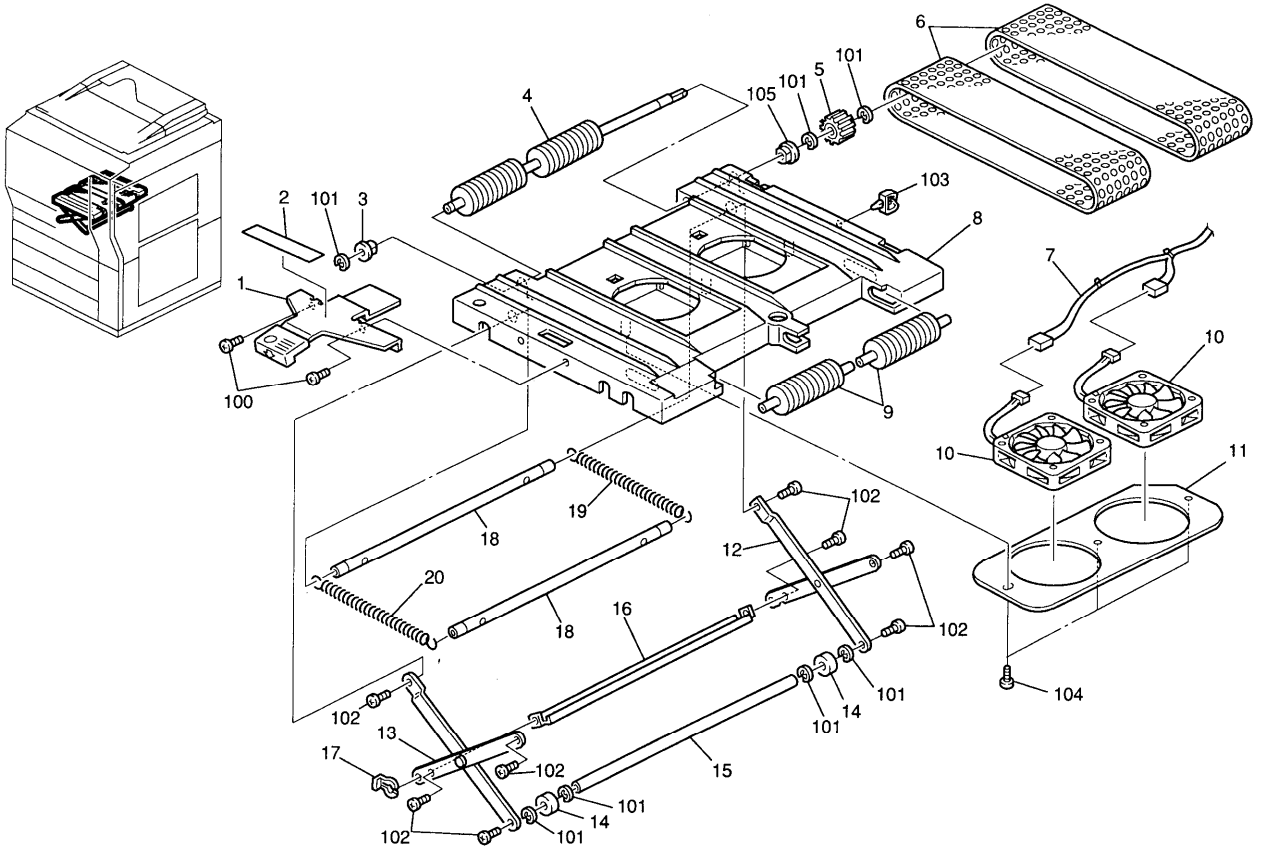


30. TRANSFER ROLLER UNIT (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A109 6256	Paper Discharge Support Plate	1
2	A109 6251	Paper Discharge Plate	1
3	A109 6243	Entrance Seal Ass'y - Transfer	1
4	AA15 1821	Seal - 5.5x356	1
5	A1096248	Upper Guide Plate - Transfer	1
6	A1096247	Transfer Guide Plate Knob	1
7	A109 6200	Transfer Roller	1
8	AD04 1026	Transfer Roller Blade	1
9	A109 6222	Transfer Roller Blade Bracket	1
10	AA080162	Bushing - 8mm	2
11	AB01 3847	Gear - 30Z	1
12	54003404	Stepped Screw	2
13	AA02 0018	Magnet	2
14	A109 6235	Lower Guide Plate - Transfer	1
15	AA06 3353	Pressure Spring	2
16	AA080163	Bushing - 8mm	2
17	A1096258	Roller	1
18	AA14 5216	Pin - 6x54.9	1
19	A109 6270	Right Positioning Plate	1
20	A1096260	Toner Catch Pan	1
21	AA151822	Seal - 3x4x47	2
22	AA15 1860	Seal - 2x5.5x347.8	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0720 0060B	Retaining Ring - M6	
101	0354 0060B	Screw - M4X6	
102	07200040B	Retaining Ring - M4	

31. TRANSPORT UNIT (A109)

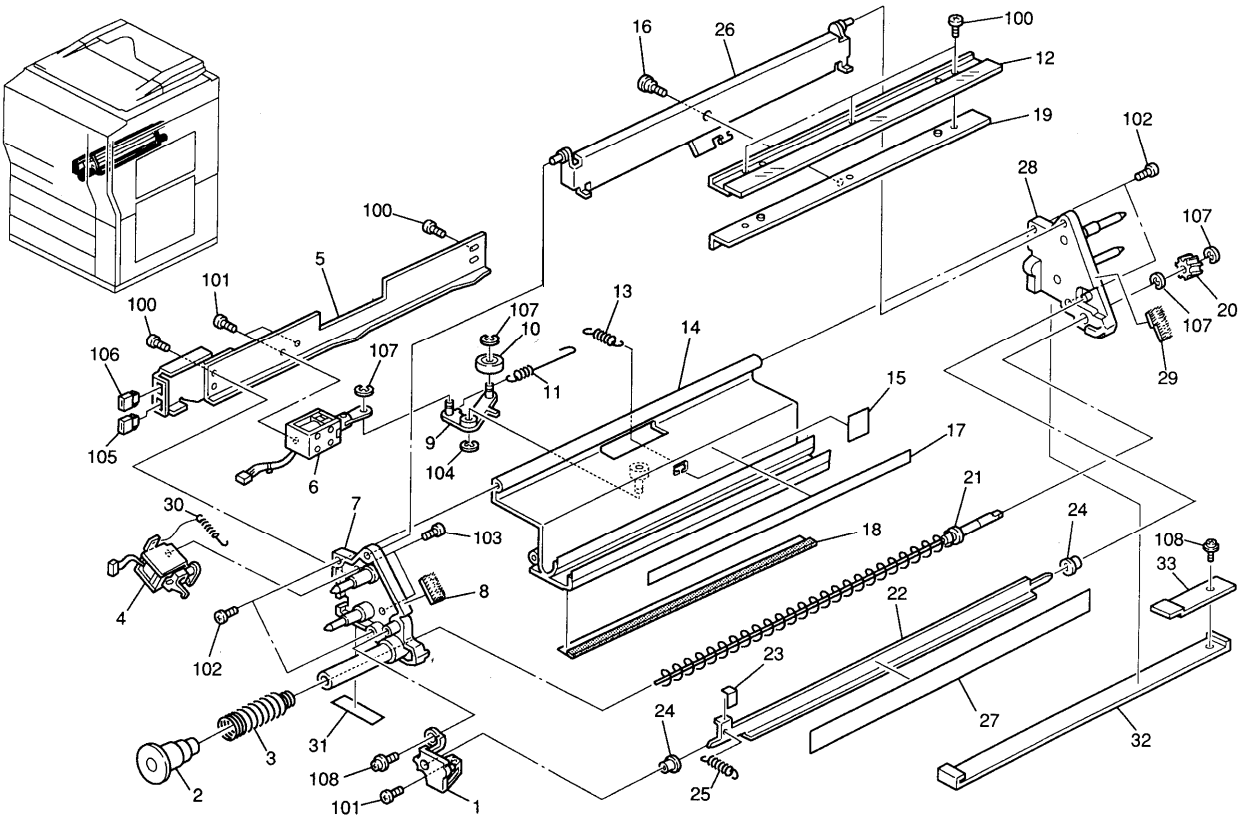


31. TRANSPORT UNIT (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	AG05 1098	Transport Lever	1
2	AA00 0537	Decal - High Voltage	1
3	50530447	Bushing - 6mm	1
4	AF02 2069	Left Transport Roller	1
5	AB01 3835	Gear - 20Z	1
6	AA04 0023	Transfer Belt	2
7	A109 5310	Relay Harness - Transport Fan	1
8	A109 3851	Transport Tank	1
9	AF02 2070	Right Transport Roller	2
10	AX64 0042	Transport Fan Motor - DC24V 3.12W	2
11	A1093859	Transport Fan Bracket	1
12	A1093853	Rear Lift Arm - Transport	1
13	A1093852	Front Lift Arm - Transport	1
14	A1093857	Support Roller - Lift Arm	2
15	AA14 0517	Drive Shaft	1
16	A1093858	Lift Arm Stay	1
17	54472681	Snap Ring	1
18	AA14 0518	Drive Shaft	2
19	AA06 2268	Spring	1
20	AA06 2267	Spring	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0434 0080B	Philips Tapping Screw - M4x8	
101	0720 0040B	Retaining Ring - M4	
102	0314 0060B	Philips Pan Head Screw - M4x6	
103	11050199	Clamp	
104	0414 0082B	Binding Self Tapping Screw - M4x8	
105	08053366	Bushing - 6mm	

32. BELT CLEANING UNIT (A109)

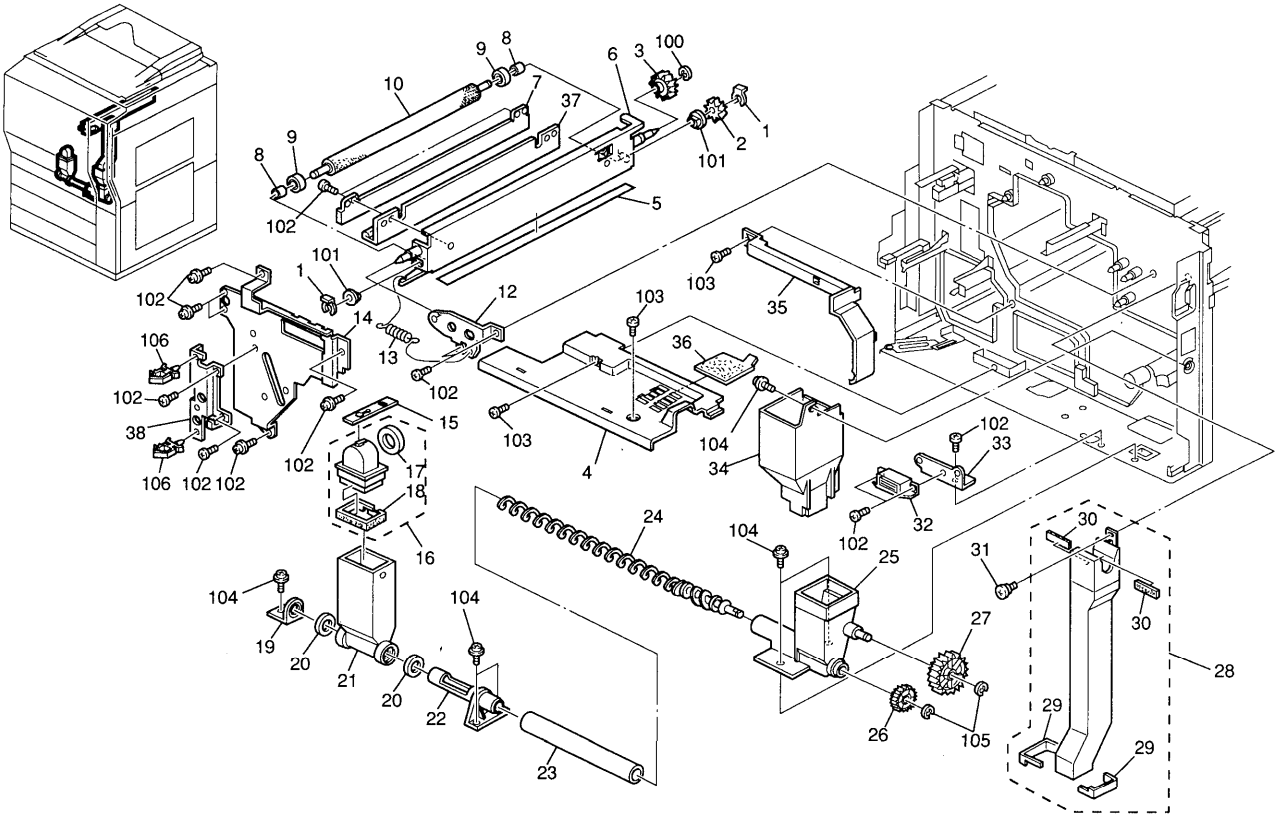


32. BELT CLEANING UNIT (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A1096367	Front Holder - Entrance Seal	1
2	A1096310	Toner Collection Cap	1
3	A1096311	Toner Collection Spring	1
4	A1096354	Cleaning Entrance Seal Solenoid	1
5	A1096361	Cleaning Left Stay	1
6	A1096344	Cleaning Blade Solenoid	1
7	A1096305	Front Side Plate - Belt Cleaning	1
8	A1096309	Front - Seal - 10X20	1
9	A1096338	Cleaning Blade Lever	1
10	A1096342	Cleaning Blade Roller	1
11	A1096350	Cleaning Blade Lever Spring	1
12	A1093598	Cleaning Blade	1
13	A1096349	Cleaning Blade Spring	1
14	A1096336	Belt Cleaning Casing	1
15	A109 6351	Spring Stopper Seal	1
16	54463648	Stepped Screw - M4	1
17	A1099502	Seal - Cleaning Blade	1
18	A1099504	Entrance Seal - Belt Cleaning Unit	1
19	A1096303	Blade Holder	1
20	AB01 3848	**Gear -** 12Z	1
21	A109 6317	Toner Collection Auger	1
22	**A1096370**	**Entrance Seal Bracket**	1
23	**A1096372**	**Entrance Seal Bracket Sheet**	1
24	**A1096369**	**Entrance Seal Collar**	2
25	**A1096352**	**Entrance Seal Spring**	1
26	**A1096364**	**Cleaning Blade Bracket**	1
27	**A1099503**	**Entrance Seal - Belt Cleaning**	1
28	**A10963l4**	**Rear Side Plate - Belt Cleaning**	1
29	**A109 6316**	**Rear Seal - 10x30**	1
30	A1096360	Release Spring	1
31	A1096377	Front Side Plate Cushion	1
32	A1096373	Base Plate - Belt Cleaning	1
33	A1096375	Base Plate Bracket	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	03140080B	Philips Pan Head Screw - M4x8	
101	0313 0060B	Philips Pan Head Screw - M3x6	
102	09524014B	Screw - M4X14	
103	0324 0080B	Philips Sunken Head Screw - M4x8	
104	0720 0030B	Retaining Ring - M3	
105	11026246	Connector - 3P	
106	11026260	Connector - Red 3P	
107	0720 0040B	Retaining Ring - M4	
108	0951 3006B	Philips Screw With Flat Washer - M3x6	

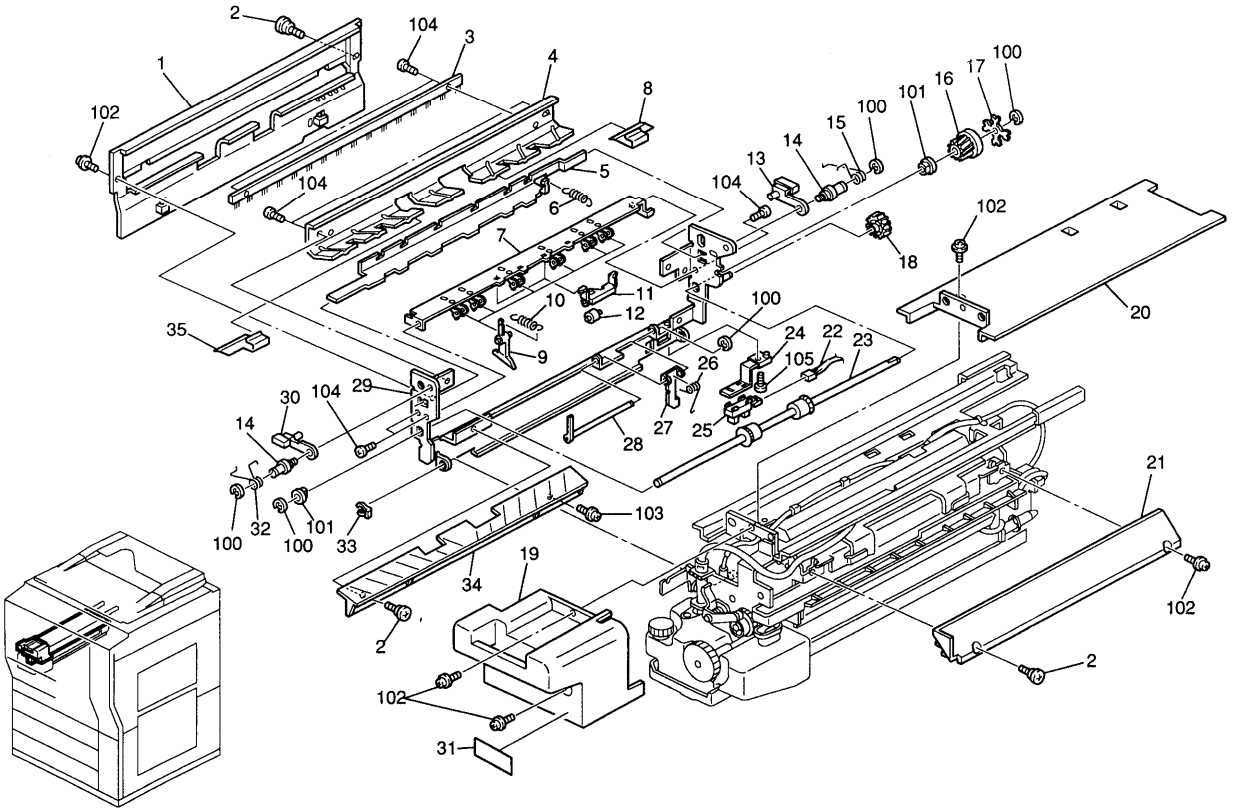
33. TONER COLLECTION SECTION (A109)



33. TONER COLLECTION SECTION **(A109)**

ndex No.	Part No.	Description	Q'ty Per Assembly
1	54472681	Snap Ring	2
2	AB01 3849	Gear -142	1
3	AB01 3850	Gear -212	1
4	A109 1384	Lower Inner Cover	1
5	A1096335	Seal - 8x327	1
6	A1096418	Brush Roller Holder	1
7	A1096430	Lubricant Bar	1
8	A1096425	Brush Roller Spacer	2
9	A1096424	Shaft Roller	2
10	A1096422	Lubricant Brush	1
11	AA132025	Spacer - 1x8x12	1
12	A1096426	Front Holder	1
13	A1096427	Release Spring	1
14	A1096140	Transfer Unit Cover Plate	1
15	A1096541	Joint Fixing Band	1
16	A1096523	Lower Collection Joint	1
17	A1096547	Seal - 18mm	1
18	A1096548	Small Duct Upper Seal	1
19	A1096545	Collection Pipe Support Plate	1
20	A1096546	Seal - 12mm	2
21	A1096543	Toner Collection Duct	1
22	A1096544	Collection Pipe - Transfer Belt	1
23	A1096555	Lower Collection Tube	1
24	A1096531	Lower Collection Coil	1
25	A1096551	Joint Duct - Collection Bottle	1
26	AB01 3853	Gear -182	1
27	AB01 3854	Gear -362	1
28	A109 6561	Toner Collection Duct	1
29	A1096564	Lower Seal - 8x13x7	2
30	A1096563	Upper Seal - 3x10X36	2
31	54132298	Screw - M4	1
32	AG07 0004	Magnetic Catch	1
33	A109 1366	Magnet Catch Bracket	1
34	A1093335	Developer Supply Funnel	1
35	A109 1397	Inner Cover - Transfer Unit	1
36	AA01 2068	Inner Cooling Fan Filter	1
37	A1096435	Grounding Plate	1
38	A109 1136	Flange Bracket	1
100	0720 0060B	Retaining Ring - M6	
101	08053385	Bushing - 6mm	
102	0354 0060B	Screw - M4X6	
103	0344 0060F	Philips Truss Head Screw - M4x6	
104	0964 4008B	Tapping Screw With Flat Washer - M4x8	
105	0720 0040B	Retaining Ring - M4	

34. FUSING UNIT 1 (A109)

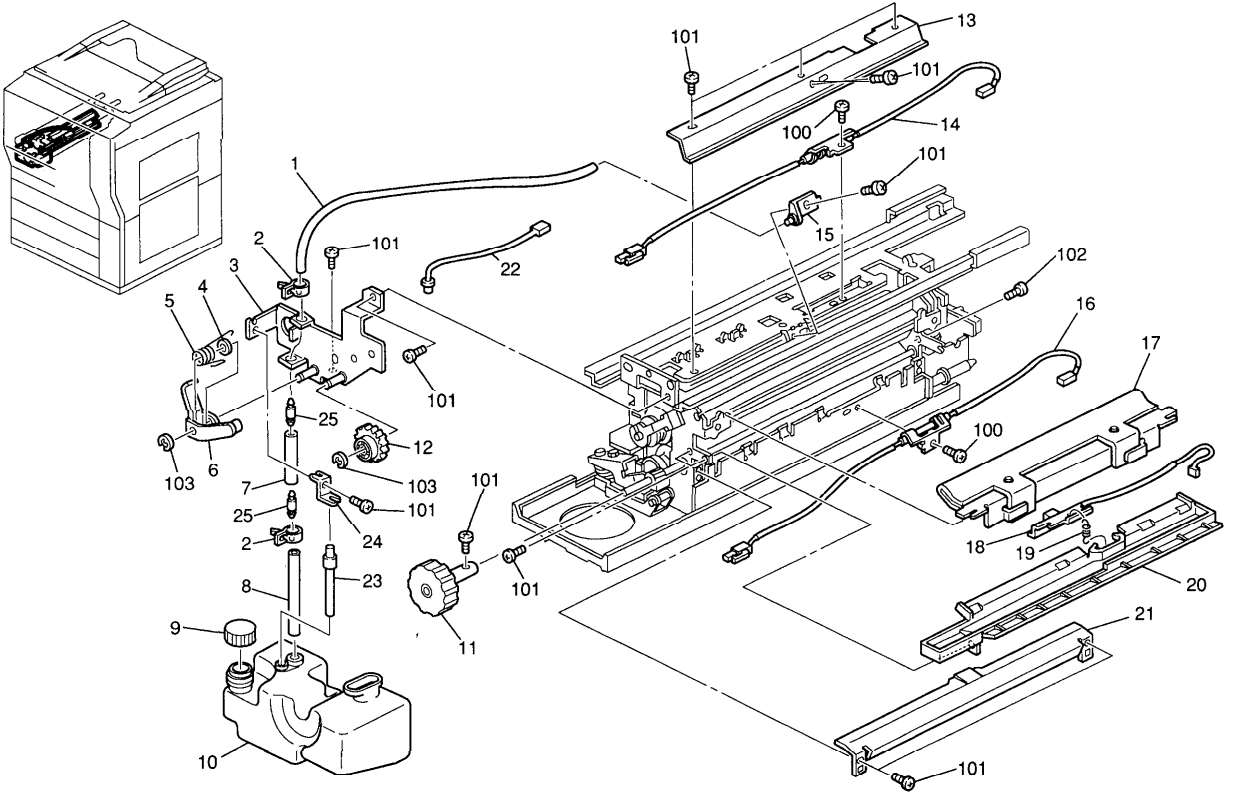


34. FUSING UNIT 1 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A109 4217	Exit Cover	1
2	58401632	Stepped Screw	3
3	52154497	Exit Antistatic Brush	1
4	A1094208	Upper Exit Guide Plate	1
5	A109 4204	Slider - Hot Roller Stripper	1
6	AA060189	Spring - Stripper Pawl Plate	1
7	A109 4201	Hot Roller Stripper Bracket	1
8	A1094207	Exit Roller Guide	1
9	AE04 4012	Hot Roller Stripper	6
10	52086136	Spring - Hot Roller Stripper	6
11	A109 4212	Exit Roller Holder	2
12	AF04 0031	Upper Exit Roller	2
13	AG05 1105	Rear Release Lever - Exit	1
14	52154444	Pin	2
15	AA06 6063	Spring - Rear Release Lever	1
16	AB01 3320	Gear - 19Z	1
17	54424495	Slip Clutch	1
18	AB01 3819	Gear - 22Z	1
19	A1094250	Front Fusing Cover	1
20	A1094251	Upper Fusing Cover	1
21	A1094253	Fusing Cover - Right	1
22	A1095324	Exit Unit Relay Harness	1
23	AF02 0310	Exit Roller	1
24	A1094210	Exit Sensor Bracket	1
25	AW02 0056	Photointerruptor - EE-SX4235A-PI	1
26	AA06 6226	Spring	1
27	A1094215	Exit Sensor Feeler	1
28	AA111020	Sensor Feeler	1
29	A1094205	Paper Exit Frame	1
30	AG05 1104	Front Release Lever - Exit	1
31	AA00 0339	Decal - Silicone Oil	1
32	AA06 6062	Spring - Front Release Lever	1
33	54472681	Snap Ring	1
34	A1094209	Lower Exit Guide Plate	1
35	A109 4213	Exit Roller Front Guide	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	07200040E	Retaining Ring - M4	
101	08053385	Bushing - 6mm	
102	0951 4008B	Philips Screw With Washer - M4x8	
103	0951 4006B	Philips Screw With Washer - M4x6	
104	0314 0060B	Philips Pan Head Screw - M4x6	
105	09524014B	Screw - M4X14	
106	11050310	Wire Clamp	

35. FUSING UNIT 2 (A109)

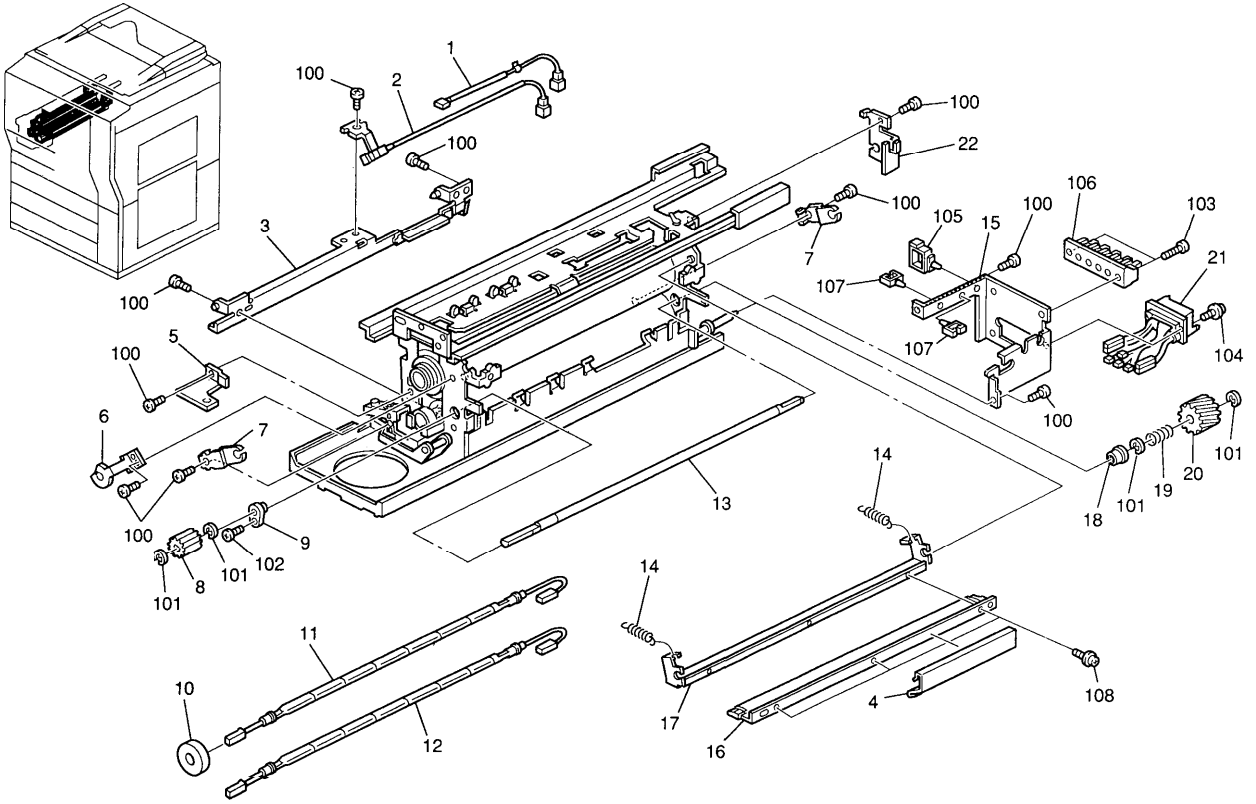


35. FUSING UNIT 2 (A109)

Index No.	Part No.	Description	Q'ty Per Assembly
1	AA180008	Oil Tube - 320mm	1
2	5447 4241	Tube Clamp	2
3	A1094230	Oil Supply Bracket	1
4	AA132025	Spacer - 1X8X12	1
5	AA06 6079	Spring - Oil Pump Lever	1
6	A0304133	Oil Pump Lever	1
7	AA180035	Sleeve - Oil Pump	1
8	AA180009	Oil Tube - 120mm	1
9	**AA03 6007**	Oil Tank Cap	1
10	AA03 1008	Oil Tank	1
11	AG05 0070	Fusing Knob	1
12	**ABO1 7038**	Gear - 32T	1
13	A1094161	Spring Plate - Oil Supply Pad	1
14	A1095406	Fusing Thermofuse - 150;C 15A	1
15	A1094162	Oil Supply Bracket	1
16	A1095408	Pressure Roller Thermofuse - 150;C 15A	1
17	AE04 5015	Oil Supply Pad	1
18	AW10 0023	Fusing Thermistor	1
19	AA06 0340	Spring - Thermistor	1
20	A0724115	Upper Entrance Guide Plate	1
21	A1094167	Lower Entrance Guide Plate	1
22	A109 5327	Relay Harness - Oil End Sensor	1
23	**52095320**	Oil End Sensor	1
24	52154411	Spring Plate	1
25	54154310	Valve - Oil Pump	2

Index No.	Part No.	Description	Q'ty Per Assembly
100	03130060B	Philips Pan Head Screw - M3x6	
101	03140060B	Philips Pan Head Screw - M4x6	
102	**0414 0082B**	Binding Self Tapping Screw - M4x8	
103	0720 0060B	Retaining Ring - M6	

36. FUSING UNIT 3 (A109)

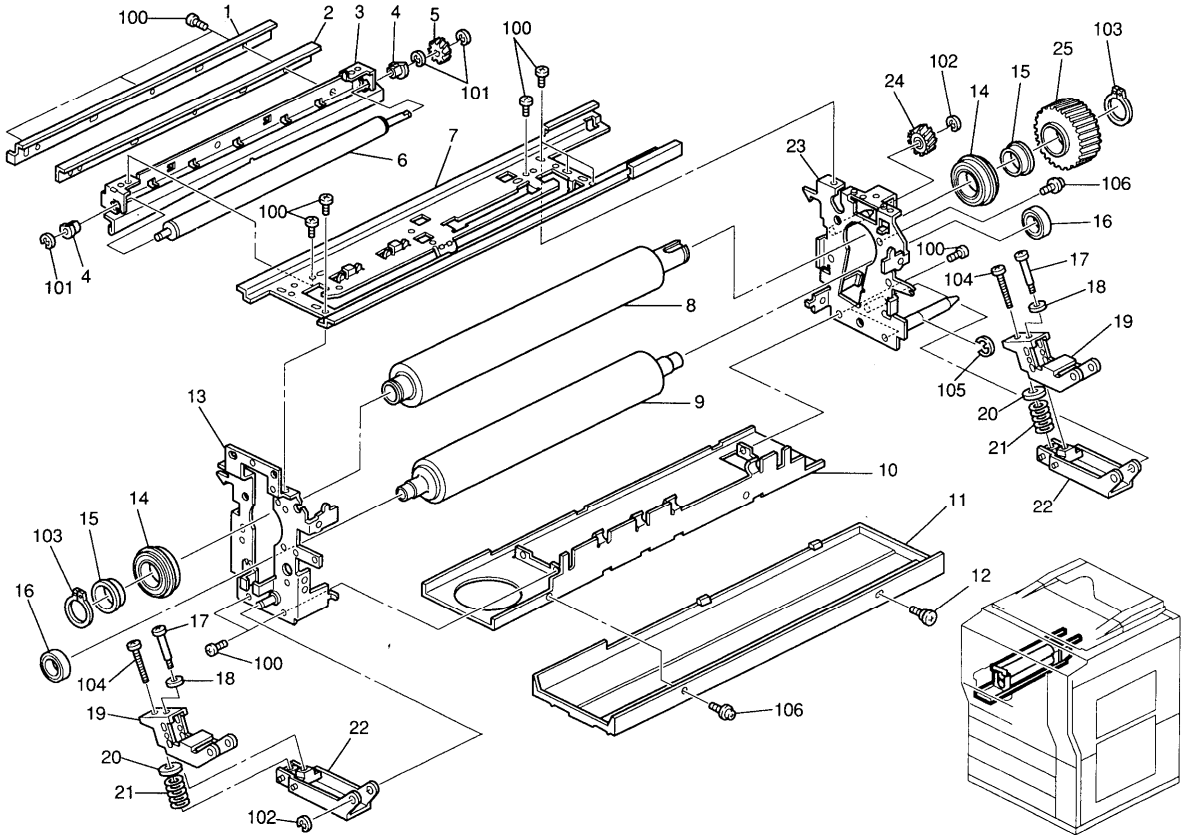


36. FUSING UNIT 3 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A1095324	Exit Unit Relay Harness	1
2	A1095405	Pressure Roller Thermistor	1
3	A1094182	**Left Lower Stay - Fusing**	1
4	A109 4153	Oil Guide	1
5	A1094110	Oil Supply Stopper	1
6	A109 4107	Fusing Lamp **Holder - Front**	1
7	A1094072	Pressure Roller Lamp Holder	2
8	AB01 3363	Gear - 16Z	1
9	AE03 1005	Bushing	1
10	AA152233	Gasket - 10x36	1
11	AX44 0073	Fusing Lamp - 115V 650W	1
11	AX44 0074	Fusing Lamp - 230V 65W	1
12	AX43 0016	Pressure Roller Lamp - 115V 400W	1
12	AX43 0017	Pressure Roller Lamp - 230V 400W	1
13	AA14 0512	Drive Shaft	1
14	AA06 2275	Release Spring	2
15	A109 4141	Fusing Harness Bracket	1
16	A109 4151	Oil Blade	1
17	52154116	Oil Blade Holder	1
18	AE03 0013	Ball Bearing - 8x15.6x4mm	1
19	AA06 3097	Spring - Fusing Drive	1
20	AB01 3817	Gear - 30Z	1
21	A1095304	Fusing Unit Harness	1
22	A109 4137	Fusing Lamp Holder - Rear	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	03140060B	Philips Pan Head Screw - M4x6	
101	0720 0060B	Retaining Ring - M6	
102	03140080B	Philips Pan Head Screw - M4x8	
103	09524014B	Screw - M4X14	
104	0952 3008B	Screw - M3X8	
105	11050292	Wire Saddle	
106	11010474	Connector - 4P	
107	11050230	Clamp	
108	0951 4008B	Philips Screw With Washer - M4x8	

37. FUSING UNIT 4 (A109)

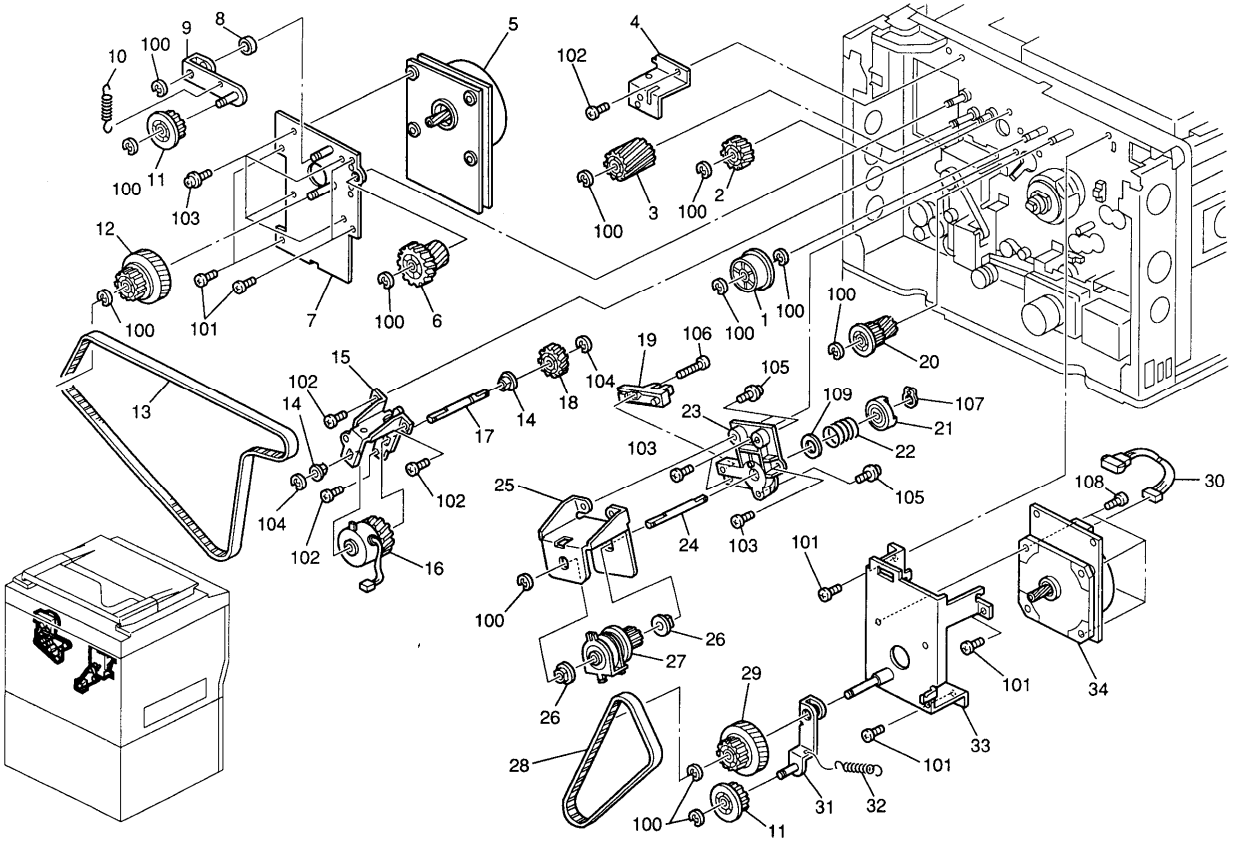


37. FUSING UNIT 4 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A109 4192	Blade Bracket	1
2	A1094194	Cleaning Roller Scraper	1
3	A109 4190	Cleaning Roller Bracket	1
4	AE03 1013	Bushing - 6mm	2
5	AB01 3820	Gear - 17Z	1
6	AE04 2004	Fusing Cleaning Roller	1
7	A1094159	Upper Fusing Rail	1
8	AE01 0006	Hot Roller	1
9	AE02 0035	Pressure Roller	1
10	A1094180	Right Lower Stay - Fusing	1
11	A1094169	Oil Pan	1
12	58401632	Stepped Screw	1
13	A1094100	Front Side Plate - Fusing	1
14	AE03 0015	Ball Bearing - 35x47x7	2
15	AE03 2012	Bushing - 30mm	2
16	AE03 0019	Ball Bearing - 7x20x32	2
17	AA143707	Stepped Screw - M5	2
18	AA13 2094	Spacer - Mounting Arm	2
19	A1094063	Upper Pressure Lever	2
20	A0304145	Pressure Spring Holder	2
21	AA06 3355	Pressure Spring	2
22	A1094064	Lower Pressure Lever	2
23	A109 4130	Rear Side Plate - Fusing	1
24	AB01 3318	Gear - 17Z	1
25	AB01 3818	Gear - 61Z	1

ndex No.	Part No.	Description	Per embly
100	0314 0060B	Philips Pan Head Screw - M4x6	
101	0720 0040E	Retaining Ring - M4	
102	0720 0060B	Retaining Ring - M6	
103	0725 0300E	Retaining Ring C - M30	
104	05850161B	Hexagon Bolt - M5x16	
105	0720 0080B	Retaining Ring - M8	
106	0951 4008B	Philips Screw With Washer - M4x8	

38. DRIVE SECTION 1 (A109)

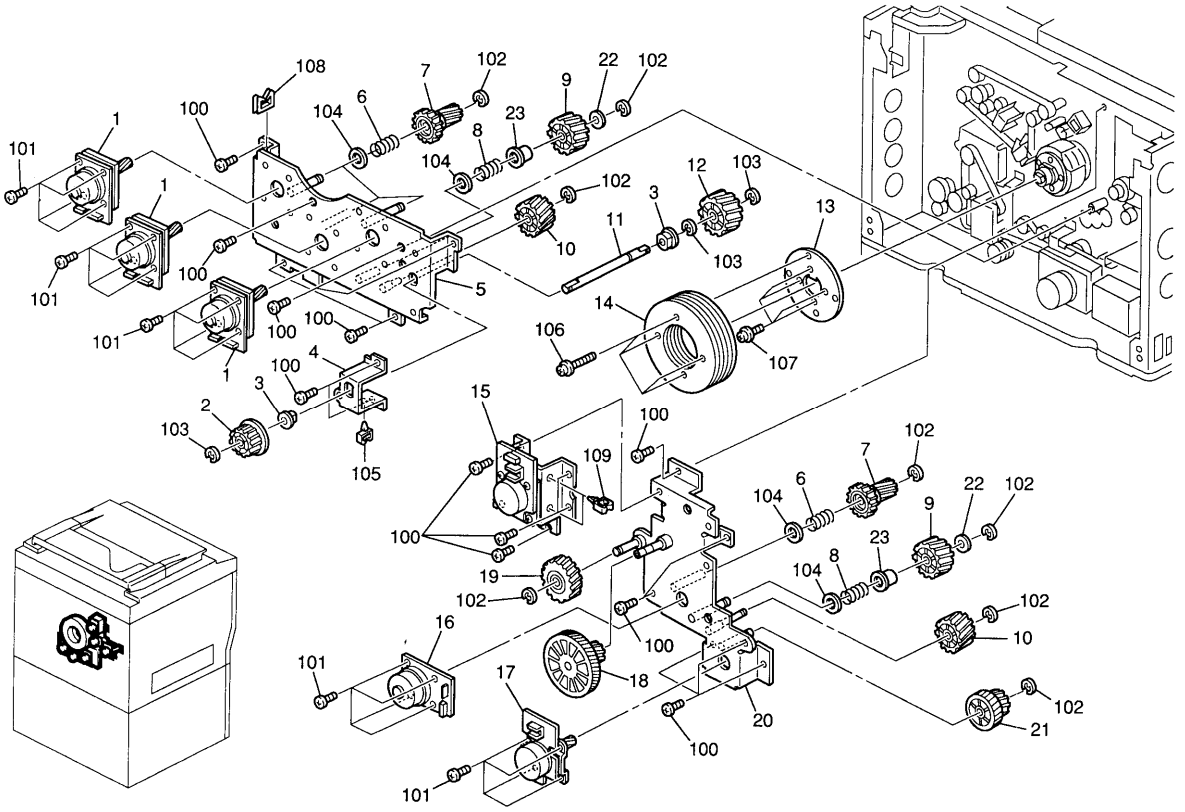


38. DRIVE SECTION 1 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	AB03 0442	Timing Pulley	1
2	AB01 3827	Gear - 20Z	1
3	AB01 3828	Gear - 20Z	1
4	A1095762	Support Bracket - E	1
5	AX06 0093	Lubricant Brush Motor - DC36W	1
6	AB01 7311	Gear - 30Z/34Z	1
7	A109 4621	Lubricant Motor Bracket	1
8	A1094614	Spacer - M8	1
9	A1094612	Tightener Arm	1
10	54182859	Spring - Regist Roller (Front)	1
11	AB03 0441	Timing Pulley - 28Z	2
12	AB01 7310	Gear - 26Z/89Z	1
13	AA04 3232	Timing Belt -699 S3M	1
14	50530447	Bushing - 6mm	2
15	A1094642	Clutch Bracket - Lubricant Brush	1
16	AX20 0097	Magnetic Spring Clutch	1
17	AA14 5219	Drive Shaft	1
18	AB01 3826	Gear - 21Z	1
19	AW02 0062	Photointerruptor - EE-SX4019-P15	1
20	AB01 7312	Gear - 19Z/26Z	1
21	A1094629	Joint - Clutch	1
22	AA06 3358	Pressure Spring	1
23	A1094628	Clutch Holder	1
24	AA14 5218	Clutch Shaft	1
25	A1094627	Clutch Holder Bracket	1
26	50530223	Bushing - 8mm	2
27	AX21 0042	Spring Clutch	1
28	AA04 3231	Timing Belt -453 S3M	1
29	AB01 7309	Gear - 28Z/62Z	1
30	A109 5316	Relay Harness - Development Motor	1
31	A1094754	Belt Tightener	1
32	AA06 0064	Tension Spring	1
33	A1094752	Drive Motor Bracket	1
34	AX06 0085	Color Development Drive - DC26W	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0720 0060B	Retaining Ring - M6	
101	0354 0060B	Screw - M4X6	
102	0434 0080B	Philips Tapping Screw - M4x8	
103	0951 4008B	Philips Screw With Washer - M4x8	
104	0720 0040B	Retaining Ring - M4	
105	0951 4006B	Philips Screw With Washer - M4x6	
106	0314 0160B	Philips Pan Head Screw - M4x16	
107	0727 0080E	Retaining Ring - M8	
108	0950 4008B	Philips Screw With Spring Washer	
109	08077049	Spacer - 12.3x18mmx0.2T	

39. DRIVE SECTION 2 (A109)

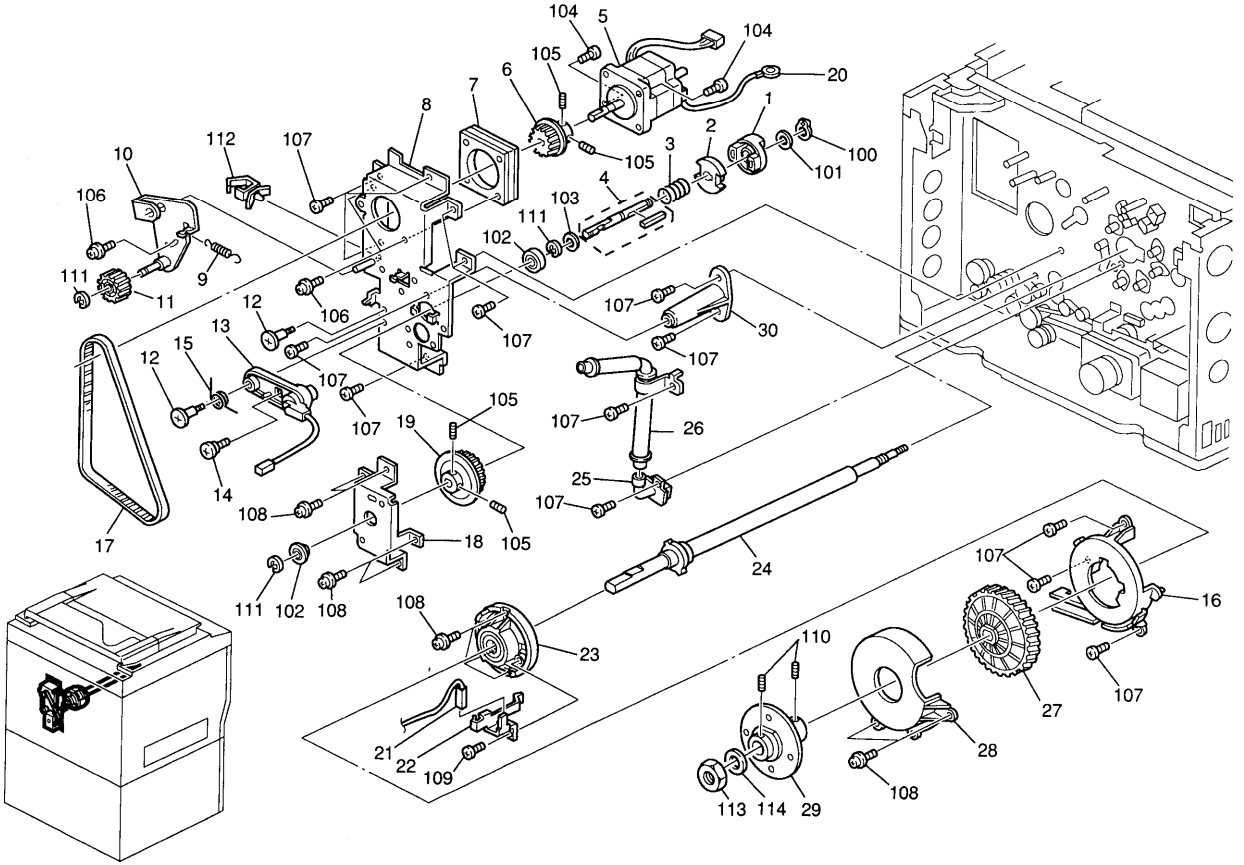


39. DRIVE SECTION 2 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	AX05 0067	Color Sleeve Motor - DC9.3W	3
2	AB03 0440	Timing Pulley - 28Z	1
3	50530223	Bushing - 8mm	2
4	A1094723	Support Plate	1
5	A1094725	Sleeve Motor Bracket	1
6	AA06 3357	Pressure Spring	4
7	AB01 7307	Gear - 20Z/50Z	4
8	AA06 3356	Pressure Spring	2
9	AB01 3864	Gear - 30Z	2
10	AB01 3865	Gear - 26Z	2
11	AA14 0515	Drive Shaft	1
12	AB01 3823	Gear - 31Z	1
13	A1094652	Fly Wheel -190	1
14	A109 4651	Fly Wheel -195	1
15	A1094656	Drum Motor	1
16	AX05 0070	Black Sleeve Motor - DC9.3W	1
17	AX05 0066	Black Dev.Drive Motor - DC7.2W	1
18	AB01 7313	Gear - 20Z/132Z	1
19	AB01 3830	Gear - 40Z	1
20	A1094742	Drum Drive Motor Bracket	1
21	ABO1 7308	Gear - 25Z/56Z	1
22	AA13 2133	Spacer	2
23	A109 4727	Collar - 10x17x18mm	2

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0354 0060B	Screw - M4X6	
101	09503010B	Philips Screw With Spring Washer	
102	0720 0040E	Retaining Ring - M4	
103	0720 0060E	Retaining Ring - M6	
104	08077049	Spacer - 12.3x18mmx0.2T	
105	11050231	Clamp	
106	0951 5040B	Screw - M5X40	
107	0951 4008B	Philips Screw With Washer - M4x8	
108	11050349	Edge Saddle	
109	11050310	Wire Clamp	

40. DRIVE SECTION 3 (A109)

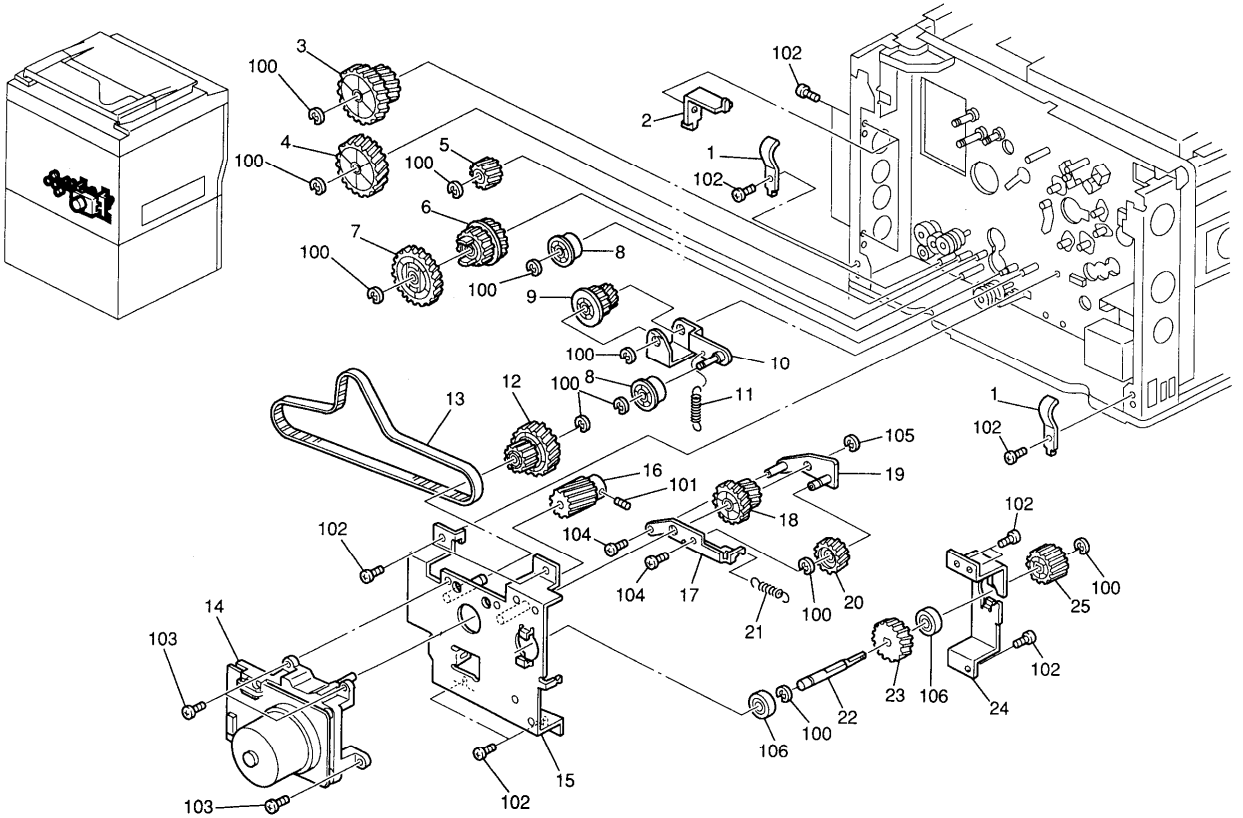


40. DRIVE SECTION 3 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A1094674	Front Joint - Transfer Belt	1
2	A1094675	Rear Joint - Transfer Belt	1
3	AA06 3359	Pressure Spring	1
4	AI 094679	Transfer Belt Drive Shaft	1
5	AX06 0088	Transport Belt Motor - DC24V 2A	1
6	AB03 0444	Timing Pulley - 66Z	1
7	A1094670	Motor Cushion	1
8	A1094671	Transfer Belt Motor Bracket	1
9	54323265	Spring Lock Lever	1
10	A1094676	Belt Tightener	1
11	AB03 0445	Timing Pulley - 44Z	1
12	AA143708	Stepped Screw - M4	2
13	AD02 1095	Transfer Roller Receptacle	1
14	59192201	Shoulder Screw - M4	1
15	AA06 6231	Receptacle Spring	1
16	A1091132	Drum Flange Cover	1
17	AA04 3234	Timing Belt -200 TN15 10.0	1
18	A1094673	Pulley Cover	1
19	AB03 0443	Timing Pulley - 88Z	1
20	A1005378	Grounding Wire	1
21	A1095390	Drum Bias Cable	1
22	A1094655	Drum Shaft Terminal	1
23	A1094653	Drum Shaft Holder	1
24	A1092270	Drum Shaft	1
25	A1092380	ID Sensor Duct	1
26	A1092385	Duct Tube Ass'y	1
27	AB01 3829	Gear - 80Z	1
28	A1091131	Drum Gear Cover	1
29	A1094650	Fly-wheel Support Plate	1
30	A1096150	Positioning Screw	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0725 0120E	Retaining Ring C - M12	
101	08077049	Spacer - 12.3x18mmx0.2T	
102	07413808	Ball Bearing - 8x16x5mm	
103	08075053	Washer	
104	0354 0100B	Screw - M4X10	
105	0574 0060E	Hexagon Headless Set Screw - M4x6	
106	0951 4006B	Philips Screw With Washer - M4x6	
107	0354 0060B	Screw - M4X6	
108	0951 4008B	Philips Screw With Washer - M4x8	
109	04140082B	Binding Self Tapping Screw - M4x8	
110	0575 0050E	Hexagon Headless Set Screw - M5x5	
111	0720 0060E	Retaining Ring - M6	
112	11050310	Wire Clamp	
113	07100100B	Hexagonal Nut - M10	
114	0701 0100B	Flat Washer -10	

41. DRIVE SECTION 4 (A109)

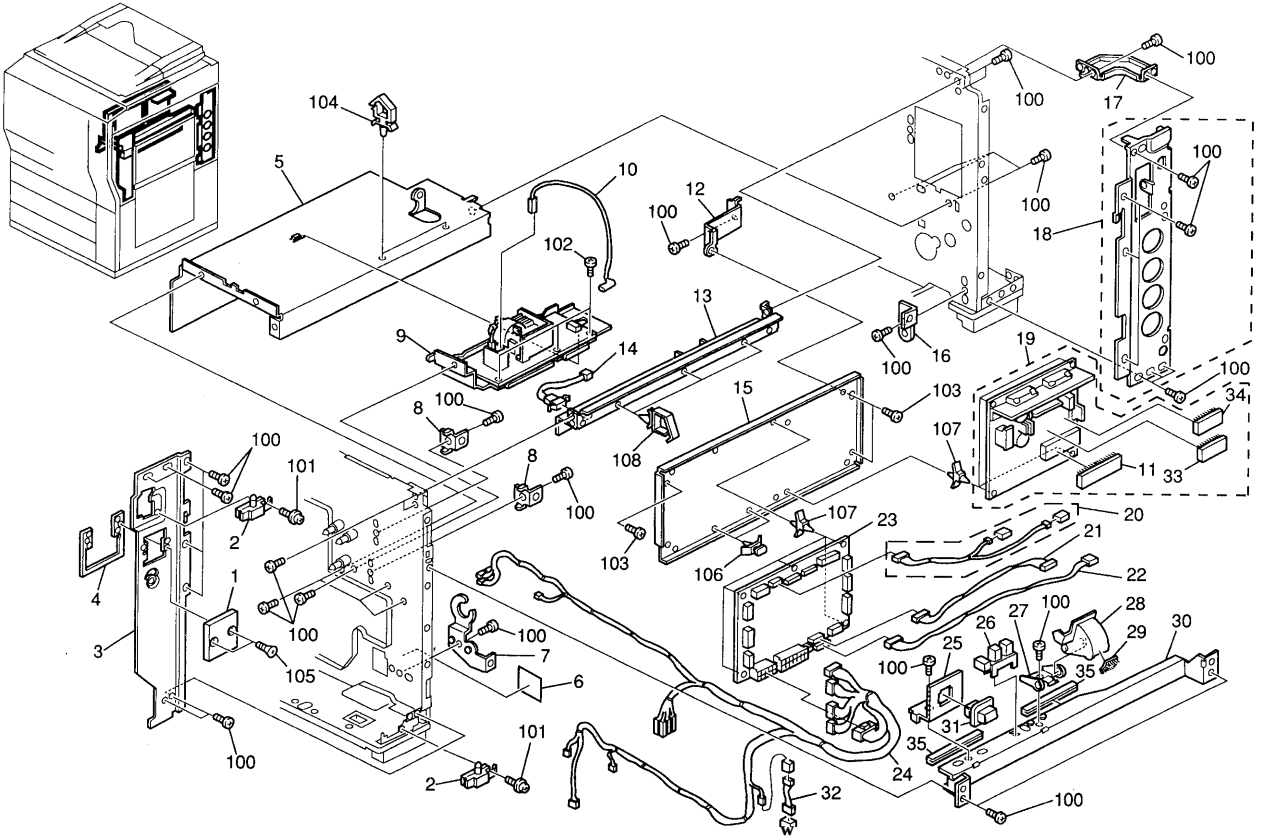


41. DRIVE SECTION 4 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A033 7558	Grounding Plate	2
2	A1095751	Main Control Board Hinge	2
3	AB01 7320	Gear - 29Z/44Z	1
4	AB01 3837	Gear - 42Z	1
5	AB01 3838	Gear - 17Z	1
6	AB01 7318	Gear - 29Z/33Z	1
7	AB01 3836	Gear - 46Z	1
8	AB03 0446	Timing Pulley	2
9	AB01 7321	Gear - 20Z/30Z	1
10	A109 4712	Belt Tightener	1
11	AA06 0559	Release Spring	1
12	AB01 7316	Gear - 20Z/43Z	1
13	AA04 3233	Timing Belt -600 S3M	1
14	AX06 0084	Transport Motor - DC36W	1
15	A1094692	Transport Motor Bracket	1
16	AB01 3870	Gear - 22Z	1
17	A1094697	Idle Gear Bracket - Rear	1
18	AB01 7314	Gear - 20Z/33Z	1
19	A1094695	Idle Gear Bracket - Front	1
20	AB01 3832	Gear - 28Z	1
21	54472743	Lever Spring	1
22	AA145220	Drive Shaft	1
23	AB01 3834	Gear - 30Z	1
24	A1094694	Fusing Drive Gear Bracket	1
25	AB01 3835	Gear - 20Z	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0720 0060B	Retaining Ring - M6	
101	0575 0050E	Hexagon Headless Set Screw - M5x5	
102	0354 0060B	Screw - M4x6	
103	03540100B	Screw - M4x10	
104	0314 0060B	Philips Pan Head Screw - M4x6	
105	0720 0040E	Retaining Ring - M4	
106	07403008	Ball Bearing - 8x22x7	

42. ELECTRICAL SECTION 1 (A109)

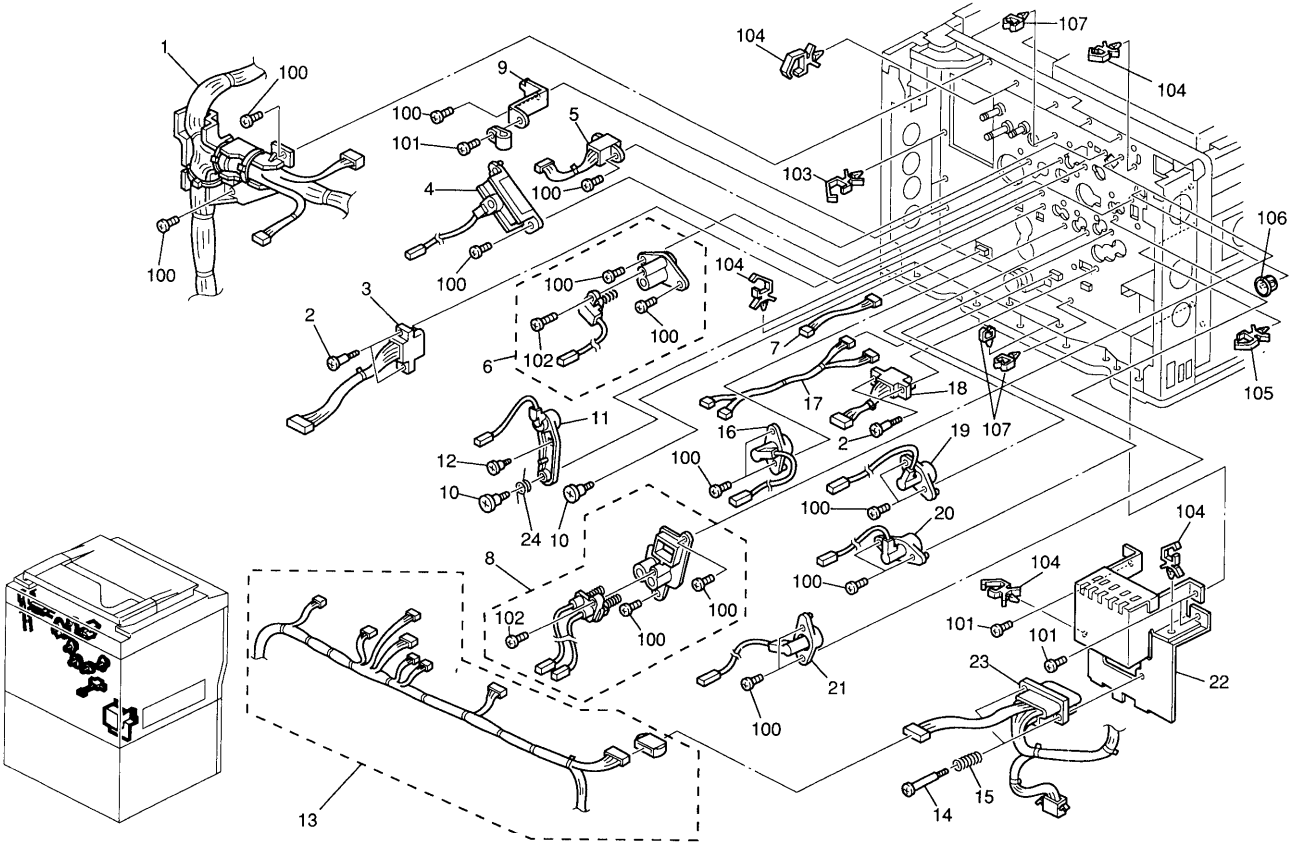


42. ELECTRICAL SECTION 1 (A109)

nd ex No.	Part No.	Description	Q'ty Per Assembl\
1	A006 1352	Key Counter Cover	1
2	A060 1325	Right Hinge Pin	2
3	A109 1101	Front Right Frame	1
4	54201515	Plate - Key Counter	1
5	A109 1086	Upper Paper Feed Stay	1
6	AA174018	Sheet-45x45	1
7	A109 2697	Front Holder - By-pass Feed Table	1
8	A109 5755	Front Holder - Interface 1	2
9	AZ31 0017	High Voltage Supply Board-D	1
10	A1095391	High Voltage Harness	1
11	A1095184	IC - uPD78P312ACW	1
12	A1095758	Rear Holder-Interface 1	1
13	A1091092	Right Upper Stay	1
14	A1095312	Relay Harness-Polygon Motor	1
15	A1095744	Interface Board 1 Bracket	1
16	A1092722	Stay Angle	1
17	A1091109	Frame Bracket - Rear Upper Right	1
18	A1091107	Rear Right Frame	1
19	A1095182	Transfer Belt Drive Board	1
20	A1095329	Polygon Motor Relay Harness	1
21	A1095330	AC Power Pack Relay Harness	1
22	A1095315	Relay Harness - Brush Motor	1
23	A1095111	Interface Board 1	1
24	A1095301	Front DC Harness	1
25	A1092696	Latch Bracket - By-pass	1
26	AW020065	Photointerruptor	1
27	A1092703	Sensor Feeler Holder	1
28	A1092701	Sensor Feeler - By-pass Feed Table	1
29	AA152234	Seal - 6x10x1 1	1
30	A1092707	Right Upper Stay	1
31	AG071007	Latch - By Pass Feed Table	1
32	A1095317	Key Counter Relay Harness	1
33	A1095156	IC - MB7111LM	1
34	A1095155	IC - MB7111LM	1
35	59222642	Edging	2

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0434 0080B	Philips Tapping Screw - M4x8	
101	0964 4008B	Tapping Screw With Flat Washer - M4x8	
102	03140060B	Philips Pan Head Screw - M4x6	
103	0354 0060B	Screw - M4X6	
104	11050292	Wire Saddle	
105	0323 0060B	Philips Sunk Screw - M3x6	
106	11050409	Spacer	
107	11050193	Nylon Stud	
108	11050413	Harness Clamp	

43. ELECTRICAL SECTION 2 (A109)

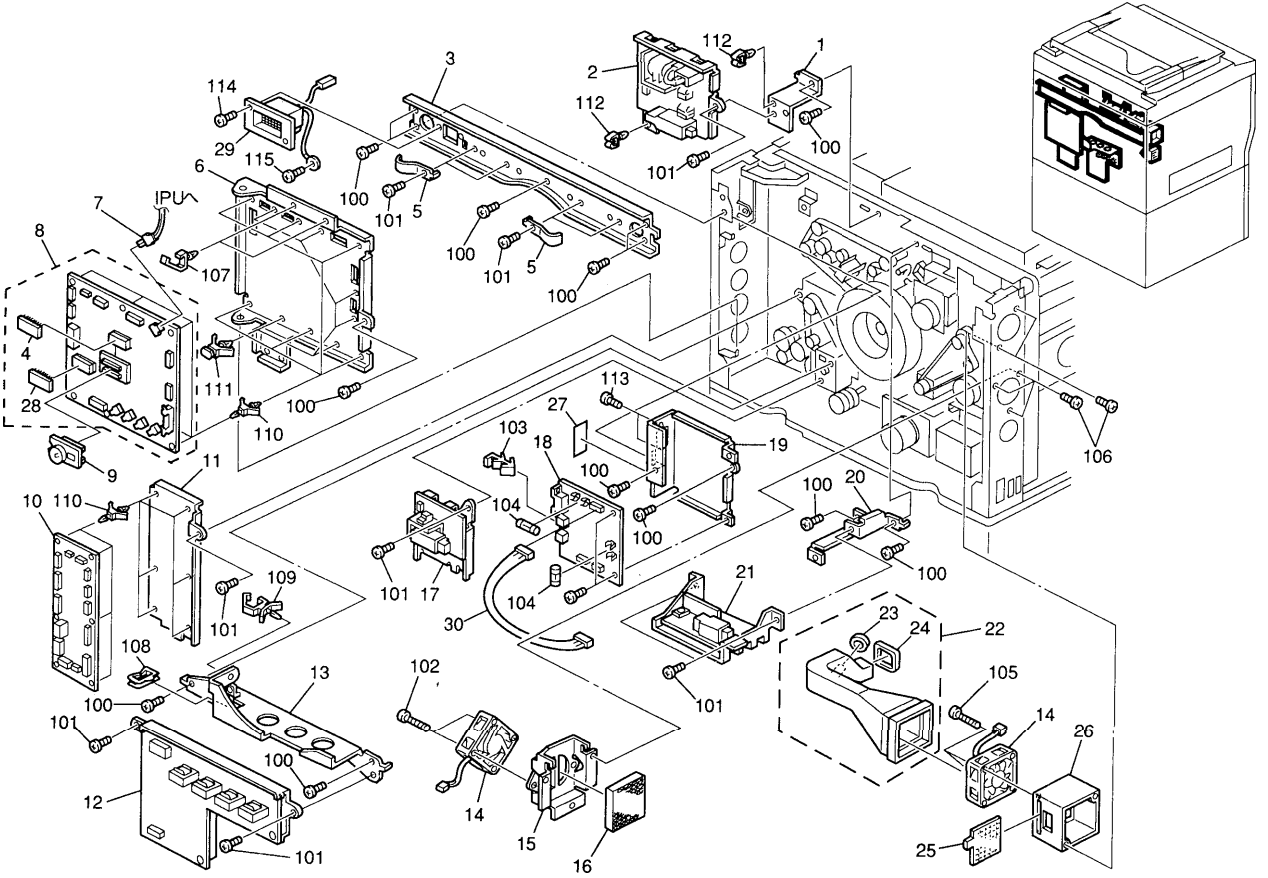


43. ELECTRICAL SECTION 2 (A109)

ndex No.	Parl No.	Description	Q'ty Per Assembly
1	A1095302	Rear Upper DC Harness	1
2	AA143301	Stepped Screw - M3x4	4
3	A1095320	Development Relay Harness -1	1
4	A1093654	Cleaning Bias Receptacle	1
5	A1095318	Erase Lamp Relay Harness	1
6	A1092320	Pre-cleaning Corona Receptacle	1
7	A1095386	Transfer Belt Heater Harness	1
8	A1092300	Charge Corona Receptacle	1
9	A1095798	Harness Clamp Plate	1
10	AA143708	Stepped Screw - M4	2
11	AD02 1103	Transfer Belt Receptacle	1
12	59192201	Shoulder Screw - M4	1
13	A1095303	Rear Lower DC Harness	1
14	54465832	Connector Guide Pin	2
15	AA06 3068	Spring Connector	2
16	A109 3315	Development Bias - Terminal - Y	1
17	A109 5314	Relay Harness - Transport Unit	1
18	A109 5321	Development Relay Harness -2	1
19	A109 3314	Development Bias Terminal - M	1
20	A1093313	Development Bias - Terminal - C	1
21	A1093312	Development Bias Terminal - B	1
22	A1091115	Fusing Connector Bracket	1
23	A1095372	AC Main Harness	1
24	AA06 6227	Receptacle Spring	1

Index No.	Part No.	Description	Q'ty Per Assembly
100	0354 0060B	Screw - M4X6	
101	0434 0080B	Philips Tapping Screw - M4x8	
102	0433 0102B	Tapping Screw - M3x10	
103	11050316	Clamp	
104	11050413	Harness Clamp	
105	11050291	Wire Saddle	
106	11060459	Bushing - 20.2mm	
107	11050199	Clamp	

44. ELECTRICAL SECTION 3 (A109)

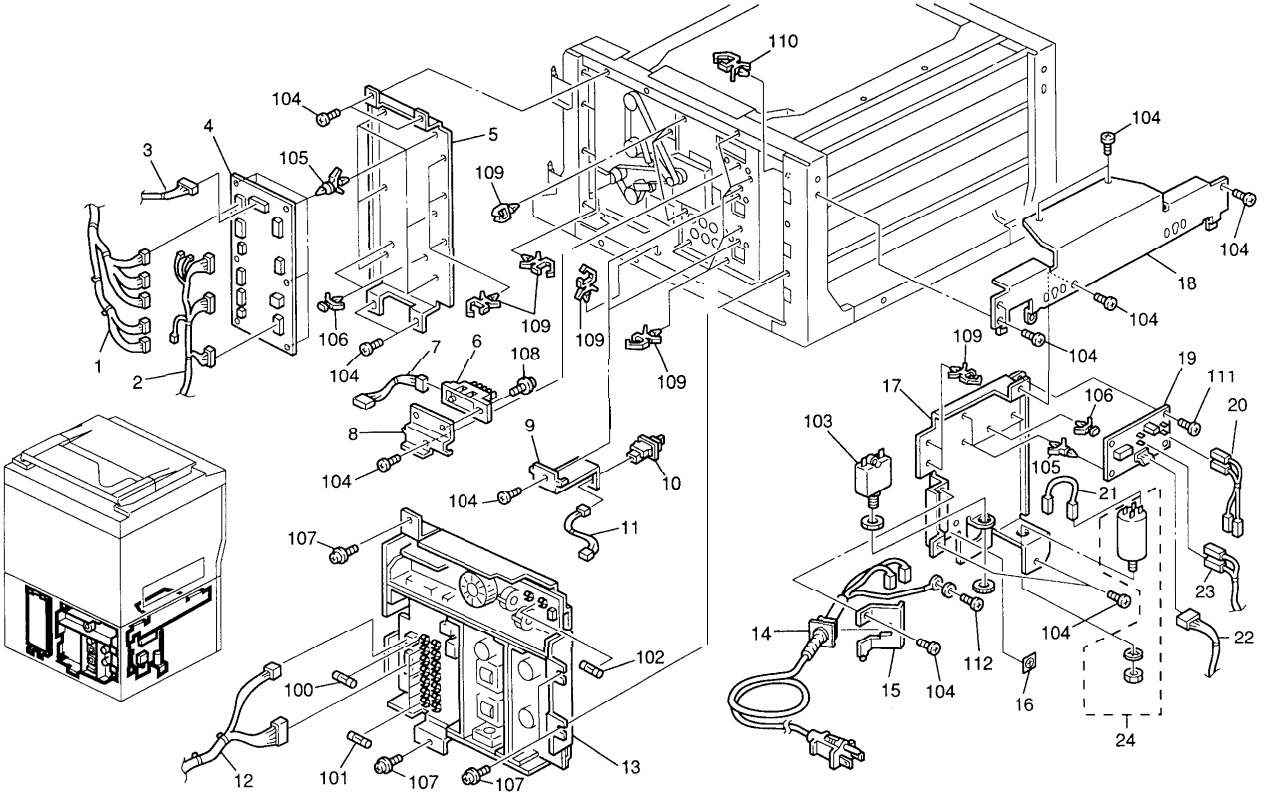


44. ELECTRICAL SECTION 3 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A109 5761	Support Bracket - T	1
2	AZ32 0068	High Vol. Supply Board -T1,PCC,BR	1
3	A1091119	Rear Support Stay	1
4	A1095267	IC - 4MX8120SN	1
5	A033 7558	Spring Plate - Grounding	4
6	A1095741	Main Control Board Bracket	1
7	AW03 0036	Optics Fiber Cable - 1000mm	1
8	A1095263	Main Control Board	1
9	A100 5125	RAM Board	1
10	A1095119	Interface Board 2	1
11	A1095743	Interface Board 2 Bracket	1
12	AZ31 0016	High Voltage Supply Board - B	1
13	A1095764	Board Bracket - B	1
14	AX64 0041	Cooling Fan Motor - DC24 7.64W	2
15	A1095771	Fusing Exhaust Fan Bracket	1
16	AA01 0081	Fusing Exhaust Ozone Filter	1
17	AZ30 0038	High Voltage Supply Board - T2	1
18	A1095234	Display Editor Interface Board	1
19	A1095742	Editor Interface Board Bracket	1
20	A1095760	Support Bracket - C	1
21	AZ30 0037	High Voltage Supply Board -C.G	1
22	A1092390	Charge Corona Duct - Large	1
23	AA15 1841	Duct Seal - 2x5x84.5	1
24	AA15 1840	Duct Seal - 2x5x34.5	1
25	A1092410	Charge Inlet Fan Filter	1
26	A1092403	Charge Corona Duct - Small	1
27	A1095746	Seal - 6x6x66	1
28	A1095265	IC - 4MX8150SN	1
29	A096 7636	DF Harness - 230V	1
29	A096 5404	DF Harness - 115V	1
30	A1095331	Editor Relay Harness	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0434 0080B	Philips Tapping Screw - M4x8	
101	0354 0060B	Screw - M4x6	
102	03140300B	Philips Pan Head Screw - M4x30	
103	11025981	Fiber Connector	
104	11070750		
105	04130302B	Tapping Screw - M3x10	
106	0314 0120B	Philips Pan Head Screw - M4x12	
107	11050291	Wire Saddle	
108	11050349	Edge Saddle	
109	11050278	Harness Clamp	
110	11050193	Nylon Stud	
111	11050409	Spacer	
112	11050199	Clamp	
113	08000072	Philips Pan Head Screw - M2.6x4	
114	0353 0060F	Philips Truss Head Screw - M3x6	
115	0950 4008M	Screw - M4X8	

45. ELECTRICAL SECTION 4 (A109)

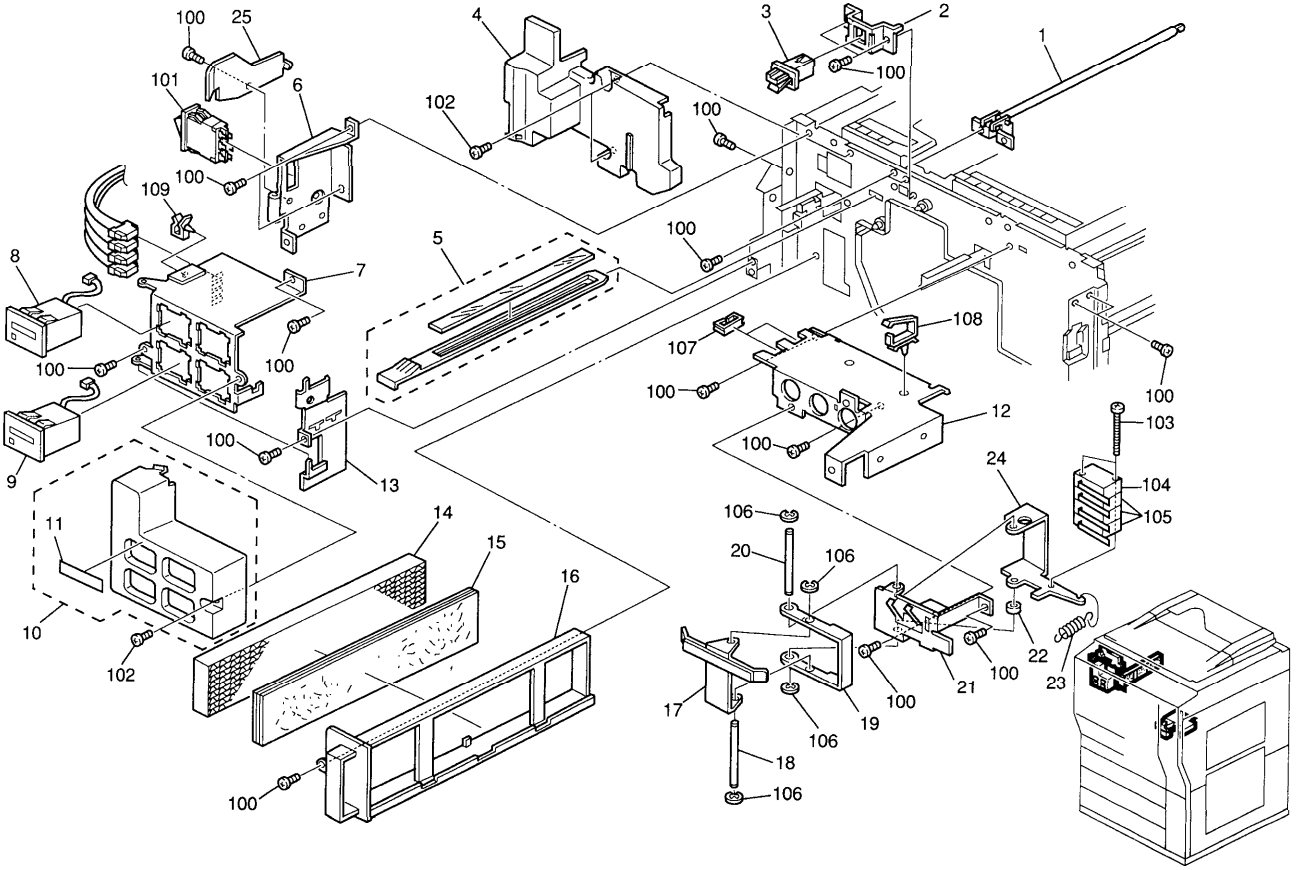


45. ELECTRICAL SECTION 4 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A513 5351	Front Harness - Paper Feed Unit	1
2	A513 5350	Rear Harness - Paper Feed Unit	1
3	A1095355	Relay Harness - Paper Tray Unit	1
4	A513 5121	Paper Feed Interface Board	1
5	A513 1172	Interface Board Bracket	1
6	AW50 0010	Push Switch	1
7	A513 5354	Relay Harness - Paper Size Sensor	1
8	A513 2831	Paper Size Sensor Bracket	1
9	A513 2836	Tray Set Sensor Bracket	2
10	AW50 0012	Push Switch	2
11	A513 5357	Relay Harness - Tray Set Sensor	1
12	A513 5356	DC Relay Harness	1
13	AZ24 0020	DC Power Supply Unit - 100/120V	1
13	AZ24 0029	DC Power Supply Board - 220/240V	1
14	A085 5571	Power Supply Cord - 115V	1
14	A085 5671	Power Supply Cord - 230V	1
15	A513 1178	Power Supply Cord Bracket	1
16	AA00 1190	Decal - Ground	1
17	A513 1179	Noise Filter Bracket	1
18	A513 1033	Left Middle Frame	1
19	A513 5431	Noise Filter Board - 100/115V	1
19	A513 5631	Noise Filter Board - 230V	1
20	A513 5380	AC Harness - Noise Filter Board (IN)	1
21	A513 5381	Relay Harness	1
22	A513 5383	Heater Harness	1
23	A513 5384	AC Harness - Noise Filter Board (OUT)	1
24	A513 5542	Noise Filter - 115V	1
24	A513 5642	Noise Filter - 220V/240V	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	11070391	125V 5A	
101	11070392	125V 6.3A	
102	11070629	125V 15A	
103	11070693	Circuit Breaker - 18A 250V	
104	04340080B	Philips Tapping Screw - M4x8	
105	11050193	Nylon Stud	
106	11050409	Spacer	
107	0964 4008B	Tapping Screw With Flat Washer - M4x8	
108	0951 3008B	Philips Screw With Flat Washer - M3x8	
109	11050310	Wire Clamp	
110	11050413	Harness Clamp	
111	03140080M	Philips Pan Head Screw - M4x8	
112	08010142	Screw - Spring Washer - M5x8	

46. FRAME SECTION 1 (A109)

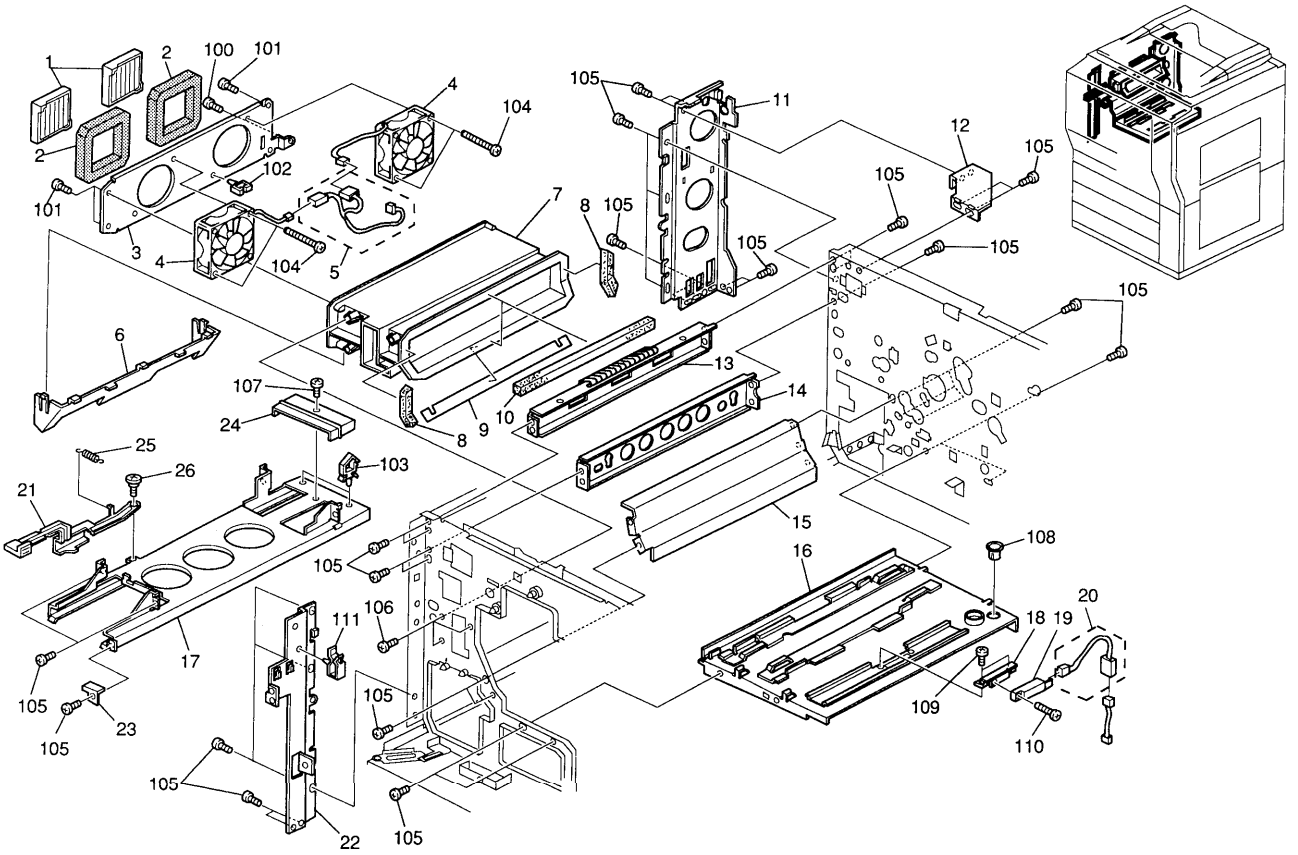


46. FRAME SECTION 1 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A1095726	Scanner Stopper Rod	1
2	A1093437	Latch Bracket - Toner Tank	1
3	A049 3282	Latch	1
4	A109 1387	Inner Cover - Main Switch	1
5	A1092077	Toner Shielding Glass	1
6	A1091104	Front Upper Left Frame	1
7	A1095781	Total Counter Bracket	1
8	AX31 0017	Black Total Counter	1
9	AX31 0019	Color Total Counter	1
10	A109 1393	Inner Cover - Total Counter	1
11	A109 1555	Decal - Total Counter	1
12	A1091102	Front Upper Right Bracket	1
13	A1095782	Counter Bracket Hinge	1
14	AA01 0080	Development Ozone Filter	1
15	AA01 2063	Development Filter	1
16	A1093306	Filter Holder	1
17	A1095786	Safety Switch Lever	1
18	AA145525	Pin - 4x66.2	1
19	A1095792	Safety Switch Link	1
20	AA145526	Pin - 5x63	1
21	A1095789	Safety Switch Bracket	1
22	C2023102	Collar - 6.35x10x4mm	1
23	AA06 0308	Spring	1
24	A1095794	Safety Switch Holder	1
25	A1091311	Left Door Stopper	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0434 0080B	Philips Tapping Screw - M4x8	
101	12041545	Main Switch	
102	0344 0060F	Philips Truss Head Screw - M4x6	
103	08011007	Philips Pan Head Screw - M10X7	
104	12042376	Microswitch - V-162-3C25	
105	12042233	Microswitch -AH715254N	
106	0720 0030B	Retaining Ring - M3	
107	11050349	Edge Saddle	
108	11050292	Wire Saddle	
109	11050200	Clamp	

47. FRAME SECTION 2 (A109)

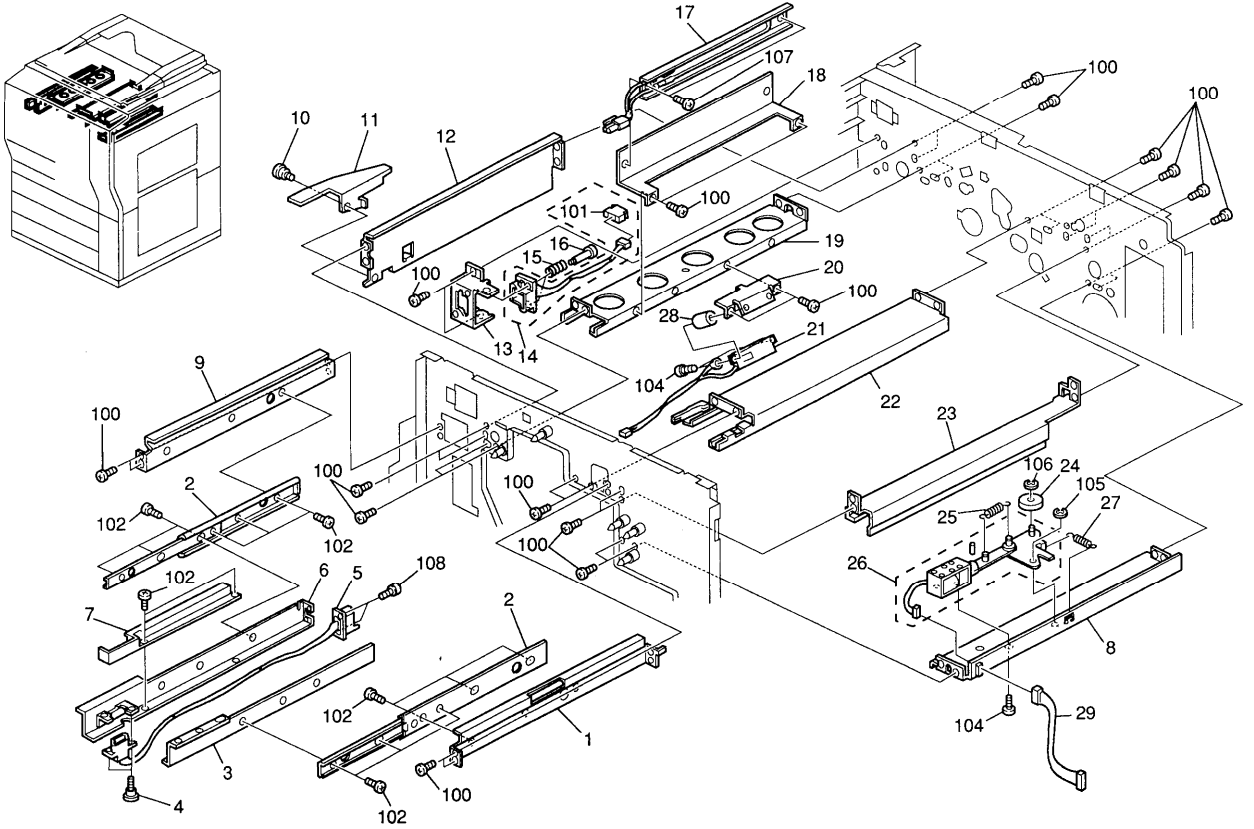


47. FRAME SECTION 2 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	AA01 2069	Development Exhaust Fan Filter	2
2	AA15 1779	Seal - 99x105.5	2
3	A1093302	Development Exhaust Fan Bracket	1
4	AX64 0043	Optics Cooling Fan Motor -DC24V 2.88	2
5	A10951I9	Separation Corona Cable	1
6	A1093303	Shielding Plate - Development Duct	1
7	A1093301	Development Exhaust Fan Duct	1
8	AA15 1827	Seal - 12x12x97	2
9	AA01 2070	Development Duct Lower Filter	1
10	AA151828	Seal - 12x12x304	2
11	A1091111	Rear Left Frame	1
12	A1091113	Frame Bracket - Rear Upper Left	1
13	A109 1089	Left Upper Tray	1
14	A109 1096	Left Middle Stay	1
15	A1093330	Lower Left Development Cover	1
16	A1093325	Development Unit Base	1
17	A1094270	Fusing Unit Rail	1
18	A1093881	Transport Sensor Bracket	1
19	AW01 0039	Photo Sensor Ass'y	1
20	A109 5313	Relay Harness - Transport Sensor	1
21	AG05 1099	Fusing Release Lever	1
22	A109 1105	Front Lower Left Frame	1
23	A1094273	Fusing Unit Stopper	1
24	A1094271	Heat Insulating Plate	1
25	AA06 0244	Spring	1
26	54463648	Stepped Screw - M4	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0354 0060B	Screw - M4X6	
101	0414 0102B	Tapping Screw M4x10	
102	11050199	Clamp	
103	11050310	Wire Clamp	
104	03140300B	Philips Pan Head Screw - M4x30	
105	04340080B	Philips Tapping Screw - M4x8	
106	0414 0102B	Tapping Screw M4x10	
107	03140060B	Philips Pan Head Screw - M4x6	
108	11060193	Bushing - 7.9mm	
109	03140050B	Philips Pan Head Screw - M4x5	
110	0313 0100B	Philips Pan Head Screw - M3x10	
111	11050200	Clamp	

48. FRAME SECTION 3 (A109)

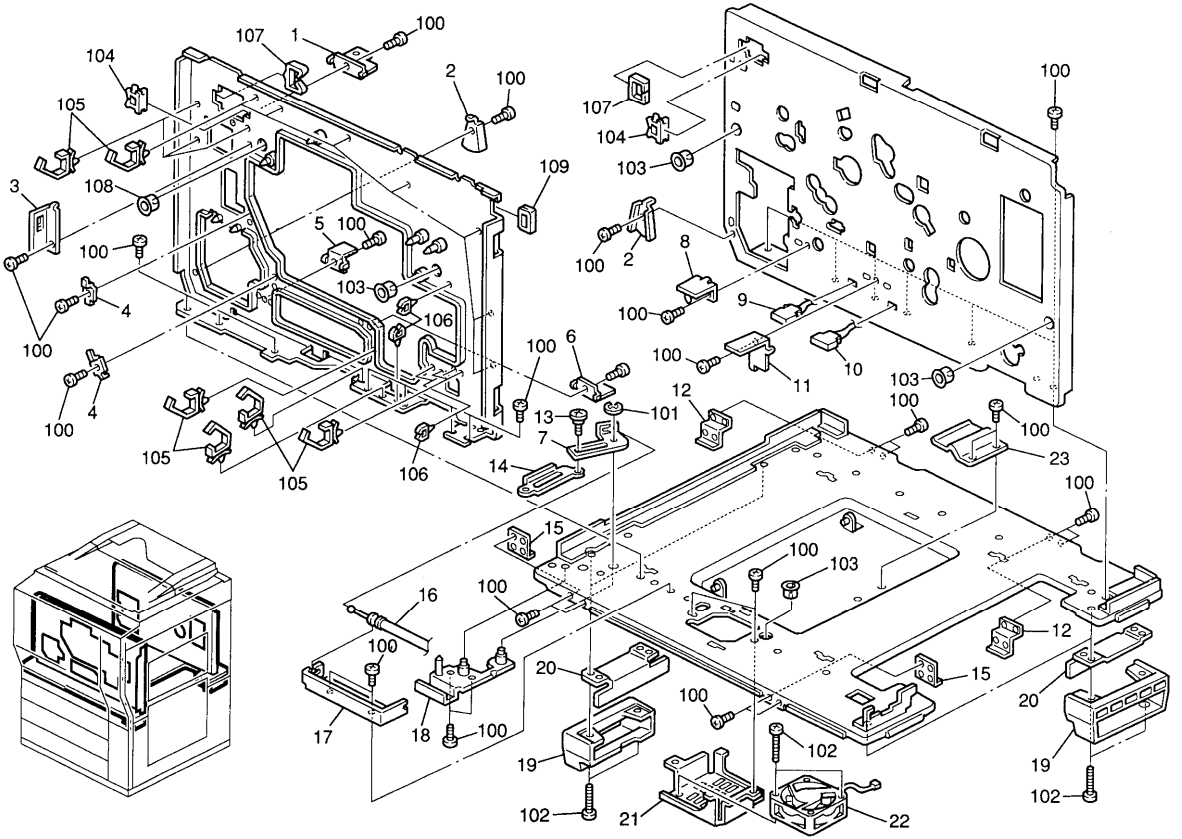


48. FRAME SECTION 3 **(A109)**

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A109 3441	Right Slide Rail Stay	1
2	AA07 0022	Slide Rail	2
3	A1093446	Right Stay - Toner Tank	1
4	AA14 3301	Stepped Screw - M3x4	2
5	A1095307	Toner Tank Relay Harness -1	1
6	A1093455	Left Stay - Toner Tank	1
7	A1093459	Connector Cover - Hopper Harness	1
8	A1096403	Solenoid Bracket	1
9	A1093440	Left Slide Rail Stay	1
10	AA143358	Stepped Screw - M4x3	1
11	A1093323	Development Unit Stopper - B/C	1
12	A1091094	Left Side Stay	1
13	A1093438	Connector Bracket	1
14	A1095308	Toner Tank Relay Harness -2	1
15	AA06 3068	Spring Connector	1
16	54465832	Connector Guide Pin	1
17	AX40 0057	Heater - 115V 9W	1
17	AX40 0058	Heater - 230V 9W	1
18	A109 2421	Drum Heater Bracket	1
19	A1093322	Development Unit Rail	1
20	A1092426	Drum Potential Sensor Bracket	1
21	AW33 0004	Drum Potential Sensor	1
22	A1096131	Transfer Unit Rail	1
23	A109 6401	Lubricant Brush Roller Stay	1
24	A1096414	Roller	1
25	A1096415	Lever Spring	1
26	A1096406	Lubricant Brush Solenoid	1
27	A109 6416	Release Spring	1
28	AA13 2178	Spacer - Drum Potential Sensor	2
29	A1095328	Solenoid Relay Harness	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0434 0080B	Philips Tapping Screw - M4x8	
101	11026265	Connector - Red 8P	
102	0314 0050B	Philips Pan Head Screw - M4x5	
103	11026246	Connector - 3P	
104	0313 0060B	Philips Pan Head Screw - M3x6	
105	0720 0040B	Retaining Ring - M4	
106	0720 0030B	Retaining Ring - M3	
107	0957 4008B	Philips Screw W/F Washer - M4x8	
108	0952 3008B	Screw - M3x8	

49. FRAME SECTION 4 (A109)



49. FRAME SECTION 4 (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	A1095756	Front Holder - AC Drive	1
2	A1094274	Copy Tray Holder	2
3	A1092430	Connector Bracket	1
4	A0303403	Bracket	2
5	A1093872	Front Left Positioning Plate	1
6	A109 3871	Front Right Positioning Plate	1
7	A1094771	Gear Release Arm	1
8	A1093874	Rear Left Positioning Plate	1
9	A1095310	Relay Harness - Transport Fan	1
10	A1095313	Relay Harness - Transport Sensor	1
11	A1093873	Rear Right Positioning Plate	1
12	A109 1032	Rear Fixing Plate	2
13	A1094775	Stepped Screw - M5	1
14	A1094772	Arm Bracket - Gear Release	1
15	A109 1031	Front Fixing Plate	2
16	A1094774	Gear Release Wire	1
17	A1094773	Wire Holder - Gear Release	1
18	A109 4910	Lower Left Hinge	1
19	A096 1094	Grip Base	4
20	A1091057	Grip Plate	4
21	A109 1123	Inner Cooling Fan Bracket	1
22	AX64 0041	Cooling Fan Motor - DC247.64W	1
23	A1093876	Spring Plate - Transport	1

ndex No.	Part No.	Description	Q'ty Per Assembly
100	0434 0080B	Philips Tapping Screw - M4x8	
101	0720 0040E	Retaining Ring - M4	
102	03140300B	Philips Pan Head Screw - M4x30	
103	11060193	Bushing - 7.9mm	
104	11050113	Edge - P108	
105	11050278	Harness Clamp	
106	11050199	Clamp	
107	11050352	Clamp	
108	11060430	Bushing - 13mm	
109	11050334	Edge -17	

50. MAIN CONTROL BOARD (A109)

CAPACITOR

SYMBOL NO.	INDEX NO,	SYMBOL NO.	NDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	NDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX _NO.	SYMBOL NO.	[NDEX NO.
C502	177	C512	178	C522	183	C532	184	C542	183	C552	183	C562	183
C503	178	C513	175	C523	183	C533	176	C543	184	C553	183	C563	183
C504	177	C514	180	C524	183	C534	180	C544	180	C554	180	C564	183
C505	181	C515	183	C525	183	C535	183	C545	180	C555	183	C565	180
C506	181	C516	183	C526	183	C536	184	C546	183	C556	183	C566	183
C507	181	C517	183	C527	183	C537	180	C547	183	C557	183	C567	183
C508	181	C518	183	C528	183	C538	183	C548	180	C558	180	C568	183
C509	181	C519	183	C529	181	C539	180	C549	183	C559	183	C569	183
C51O	181	C520	183	C530	183	C540	186	C550	180	C560	183	C570	180
C511	176	C521	183	C531	183	C541	186	C551	183	C561	183	C571	180

SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX: NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.
C572	183	C582	183	C593	183	C603	180	C613	183	C623	180	C634	183
C573	180	C583	183	C594	183	C604	180	C614	183	C624	183	C635	183
C574	180	C584	183	C595	183	C605	180	C615	183	C625	183	C636	183
C575	180	C585	183	C596	183	C606	180	C616	183	C626	180	C637	183
C576	183	C586	183	C597	183	C607	180	C617	181	C627	180	C638	183
C577	183	C587	183	C598	183	C608	183	C618	183	C629	183	C639	180
C578	183	C588	180	C599	183	C609	183	C619	181	C630	183	C640	183
C579	183	C589	180	C6b0	183	C61O	182	C620	180	C631	183	C641	183
C580	180	C591	183	C601	183	C611	182	C621	180	C632	183	C642	180
C581	180	C592	183	C602	183	C612	183	C622	180	C633	183	C643	183

50. MAIN CONTROL BOARD (A109)

SYMBOL NO.	INDEX NO.
C644	179
C645	179
C646	183
C647	180
C648	180
C649	180
C650	180
C651	181
C652	183
C653	183
C654	180

CONNECTOR

SYMBOL NO.	INDEX NO.
CN501	118
CN502	126
CN503	125
CN504	129
CN505	130
CN506	126
CN507	127
CN508	128
CN509	124
CN51O	117

SYMBOL NO.	INDEX NO.
CN511	119
CN512	120
CN513	121
CN514	122
CN515	119
CN517	132
CN518	131

DIODE

SYMBOL NO.	INDEX NO.
D502	138
D504	138
D505	138
D506	138
D509	138

DPS

SYMBOL NO.	INDEX NO.
DPS501	134

FIB

SYMBOL NO.	INDEX NO.
FIB501	185
FIB502	185
FIB503	185
FIB504	185
FIB505	185
FIB506	185
FIB507	185
FIB508	185
FIB509	185
FIB51O	185

SYMBOL NO,	NDEX NO.
FIB511	185
FIB512	185
FIB513	185
FIB514	185
FIB515	185
FIB516	185
FIB517	185

IC

SYMBOL NO.	INDEX NO.
IC501	170
IC502	168
IC503	168
IC504	164
IC505	169
IC506	149
IC507	156
IC508	161
IC509	2
(socket)	133

SYMBOL NO.	NDEX NO.
IC511	163
IC512	149
IC513	148
IC514	145
IC515	142
IC516	155
IC517	154
IC518	156
IC519	141
IC520	167

SYMBOL NO.	INDEX NO.
IC521	149
IC522	3
(socket)	133
IC523	122
IC524	160
IC525	160
IC526	157
IC527	157
IC528	145
IC529	141
IC530	146

SYMBOL NO.	INDEX NO.
IC531	157
IC532	142
IC533	142
IC534	142
IC535	152
IC536	165
IC537	1
IC538	165
IC539	160
IC540	157

SYMBOL NO.	INDEX NO.
IC541	149
IC542	149
IC543	158
IC544	152
IC545	150
IC546	150
IC547	153
IC548	166
IC549	151
IC550	145

SYMBOL NO.	INDEX NO.
IC551	141
IC552	142
IC553	152
IC554	143
IC555	147
IC556	144
IC557	144
IC558	159
IC559	163
IC560	159

LED

SYMBOL NO.	INDEX NO.
LED502	140

NF

SYMBOL NO.	INDEX NO.
NF501	174

Osc

SYMBOL NO.	INDEX NO.
OSC501	173
OSC502	171
OSC503	172

RESISTOR

SYMBOL NO.	[NDEX NO.	SYMBOL NO.	[NDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	[NDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	NDEX NO.
R501	190	R511	190	R521	201	R531	201	R541	190	R551	201
R502	204	R512	190	R522	201	R532	201	R542	190	R552	201
R503	203	R513	190	R523	201	R533	201	R543	190	R553	190
R504	189	R514	190	R524	201	R534	198	R544	190	R554	190
R505	199	R515	190	R525	201	R535	198	R545	201	R555	190
R506	187	R516	190	R526	201	R536	198	R546	201	R556	190
R507	190	R517	201	R527	198	R537	190	R547	201	R557	197
R508	190	R518	201	R528	190	R538	190	R548	201	R558	201
R509	199	R519	200	R529	202	R539	201	R549	201	R559	198
R51O	199	R520	201	R530	190	R540	198	R550	201	R560	190

SYMBOL NO.	INDEX NO.	SYMBOL NO.	[NDEX NO.	SYMBOL NO.	INDE NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.
R562	201	R572	204	R582	193	R592	198	R602	198	R612	188	R622	193
R563	201	R573	199	R583	197	R593	198	R603	198	R613	188	R623	193
R564	201	R574	201	R584	201	R594	198	R604	192	R614	188	R624	201
R565	190	R575	201	R585	201	R595	198	R605	203	R615	188	R625	201
R566	190	R576	201	R586	201	R596	198	R606	204	R616	188	R626	201
R567	193	R577	201	R587	201	R597	190	R607	199	R617	188	R627	198
R568	198	R578	201	R588	201	R598	190	R608	199	R618	188	R628	198
R569	201	R579	201	R589	198	R599	201	R609	190	R619	188	R629	189
R570	203	R580	203	R590	198	R600	198	R61O	203	R620	193	R630	189
R571	189	R581	204	R591	198	R601	198	R611	204	R621	197	R631	189

50. MAIN CONTROL BOARD (A109)

SYMBOL NO.	INDEX NO.
R632	189
R633	189
R634	197
R635	193
R636	197
R637	193
R638	190
R639	190
R640	190
R641	190

SYMBOL NO.	NDEX NO.
R642	190
R643	201
R644	198
R645	198
R646	201
R647	201
R648	201
R649	189
R650	197
R651	193

SYMBOL NO.	INDEX NO.
R652	190
R653	190
R654	190
R655	190
R656	201
R657	201
R658	201
R659	201
R660	201
R661	196

SYMBOL NO.	NDEX NO.
R662	196
R663	201
R664	201
R665	190
R666	201
R667	201
R668	201
R669	196
R670	190
R671	189

SYMBOL NO.	[NDEX NO.
R674	189
R675	189
R676	190
R677	189
R678	205
R679	189
R680	189
R681	189
R682	194
R683	199

SYMBOL NO.	INDEX NO.
R684	189
R685	189
R686	191
R687	191
R688	190
R689	195
R690	201
R691	201
R692	189
R693	189

SYMBOL NO.	[NDEX NO.
R694	190
R695	205
R696	202
R697	189
R698	189
R699	190
R700	202
R701	190
R702	190
R703	190

SYMBOL NO.	INDEX NO.
R704	190
R705	190
R706	190
R707	189
R708	201
R709	201
R71O	198
R711	198
R712	189
R713	202

SYMBOL NO.	[NDEX NO.
R714	201
R715	201

SW

SYMBOL NO.	INDEX NO.
SW501 (socket)	115 116

"EST POI

SYMBOL NO.	[NDEX NO.
TP501	114
TP502	114
TP503	114
TP504	114
TP505	114
TP507	114
TP508	114
TP509	114
TP51O	114
TP511	114

SYMBOL NO.	INDEX NO.
TP512	114
TP513	114
TP514	114
TP515	114
TP516	114

TRANSISTOR

SYMBOL NO.	NDEX NO.
Q501	135
Q502	135
Q503	135
Q504	135
Q505	135
Q506	135
Q507	135
Q508	135
Q51O	137
Q511	136

ZD

SYMBOL NO.	INDEX NO.
ZD501	139

50. MAIN CONTROL BOARD (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
*	A1095263	Main Control Board	1
1	A0965129	IC -M37409M2-155FFP	1
2	A109 5265	IC - 4MX8150SN	1
3	A109 5267	IC - 4MX8120SN	1

ndex No.	Part No.	Description	Q'ty Per Assembly
114	11010328	Connector Pin Contact	
115	11010360	Connector - 3P	
116	11010395	IC Socket -252	
117	11025003	Connector - 2P	
118	11025328	Connector - 12P	
119	11025340	Fiber Connector - 2P	
120	11025341	Fiber Connector	
121	11025342	Connector - 2P	
122	11025343	Connector - 2P	
123	11026134	IC Socket	
124	11026297	Connector-4P	
125	11026299	Connector-6P	
126	11026303	Connector-10P	
127	11026395	Connector - 1P	
128	11026396	Connector - 1P	
129	11026402	Connector-2P	
130	11026403	Connector-30P	
131	11026408	Connector-30P	
132	11033020	Connector-20P	
133	11040589	Dip Socket - 32P	
134	12041542	Dip Switch	
135	14000528	Transistor-DTB113EK	
136	14000555	Transistor-DTC143EK	
137	14010296	Transistor-2SA1162Y	
138	14020476	Diode - 1SS184	
139	14021152	Diode - RD7.5P	
140	14030558	LED-SEI2110RTP3	
141	14071309	IC - LS04	
142	14071311	IC - LS32	
143	14071596	IC - SN74LS14NS	
144	14072052	IC - SN74LS74ANS	
145	14072081	IC - SN74LS08NS	
146	14072135	TTLIC-74F74SJ	
147	14072137	IC -74F138SJ : TTL	
148	14072138	TTLIC - 74F139SJ	

Index No.	Part No.	Description	Q'ty Per Assembly
149	14072187	IC - SN74LS07NS	
150	14072231	IC - TD62308AF	
151	14072253	IC - SN74LS393NS	
152	14072344	IC - TD62382F	
153	14072411	IC - SN74LS125F	
154	14072463	IC-SN74ALS08NS	
155	14072464	IC-SN74ALS74ANS	
156	14072588	IC-SN74ALS04BNS	
157	14072817	IC-SN74ALS32NS	
158	14073692	IC - RF5C86	
159	14073753	IC - TC4W53F	
160	14073852	IC - MB89371AH	
161	14074113	IC-HM6225ALFP-12SLT	
162	14074137	IC-MM1035XF	
163	14074143	IC-MC68331FC	
164	14074144	IC-H81532-HD6435328A00M	
165	14074146	LSI-MB89255AHPFS	
166	14074183	IC-,UPD71051GU-10	
167	14074276	IC-LH5168-10L	
168	14080585	IC - AD7528JR	
169	14080595	IC - NJM2904M	
170	14080716	IC-NJM084M	
171	15030194	Crystal Oscillator - 32.768 Khz	
172	15030261	Oscillator - 9.8304Mhz	
173	15030307	Oscillator - 20Mhz	
174	16027029	Noise Filter - 22000PF 50V	
175	16041377	Capacitor - 0.47μF 50V	
176	16041382	Capacitor - 10μF 50V	
177	16041385	Capacitor - 47μF 50V	
178	16041386	Capacitor - 100μF ±20% 50V	
179	16050233	Capacitor - 15PF 50V	
180	16050636	Capacitor - 0.1μF	
181	16061135	Capacitor - 47oPF 50V	
182	16061450	Capacitor - 10PF 50V	
183	16061452	Capacitor - 0.01μF 50V	

Index No.	Part No.	Description	Q'ty Per Assembly
184	16061537	Capacitor - 1000PF 50V	
185	16070477	Inductor - BLM21A05	
186	16100286	Capacitor - 100PF 50V±10%	
187	16301101	Resistor -100 Ω l/4W ±5%	
188	16301151	Resistor -150 Ω ±5% l/4W	
189	16302102	Resistor -1 K Ω l/8W ±5%	
190	16302103	Resistor - 10K Ω1/8W	
191	16302104	Resistor - 100K Ω1 /8W ±5%	
192	16302105	Resistor -1 M Ω1/8W	
193	16302121	Resistor -120 Ω±5% 1 /8W	
194	16302123	Resistor - 12K Ω1/8W ±5%	
195	16302206	Resistor - 20M Ω1/8W ±5%	
196	16302220	Resistor - 22Ω1/8W±5%	
197	16302222	Resistor - 2.2KΩ l/8W	
198	16302223	Resistor - 22K Ω1/8W ±5%	
199	16302330	Resistor - 33Ω1/8W ±5%	
200	16302334	Resistor - 330K Ω	
201	16302472	Resistor - 4.7K Ω l/8W ±5%	
202	16302473	Resistor - 47K Ω1/8W ±5%	
203	16302511	Resistor -510Ω 1 /8W 25%	
204	16302821	Resistor -820 Ω1/8W ±5%	
205	16325231	Resistor - 5.23K Ω± 1 %	

51. IPU BOARD (A109)

AR

SYMBOL NO.	INDEX NO.
AR300	159
AR301	159
AR302	159
AR303	161
AR304	161
AR305	160
AR306	160
AR307	160
AR308	160
AR309	159

SYMBOL NO.	INDEX NO.
AR310	159
AR311	159

CAPACITOR

SYMBOL NO.	INDEX NO.
C300	167
C301	167
C302	167
C303	169
C304	168
C305	167
C306	168
C307	167
C308	168
C309	168

SYMBOL NO.	INDEX NO.
C310	167
C311	167
C312	167
C313	173
C314	173
C315	173
C316	173
C317	173
C318	173
C319	174

SYMBOL NO.	INDEX NO.
C320	174
C321	174
C322	174
C323	174
C324	174
C325	173
C326	173
C327	173
C328	173
C329	173

SYMBOL NO.	INDEX NO.
C330	173
C331	174
C332	174
C333	174
C334	174
C335	174
C336	174
C337	174
C338	174
C339	174

SYMBOL NO.	INDEX NO.
C340	174
C341	174
C342	173
C343	173
C344	173
C345	175
C346	173
C347	173
C348	173
C349	173

SYMBOL NO.	INDEX NO.
C350	175
C351	175
C352	173
C353	174
C354	174
C355	174
C356	174
C357	174
C358	174
C359	173

SYMBOL NO.	INDEX NO.
C360	173
C361	173
C362	174
C363	174
C364	174
C365	174
C366	174
C367	174
C368	174
C369	173

SYMBOL NO.	INDEX NO.
C370	173
C371	173
C372	173
C373	173
C374	173
C375	174
C376	174
C377	174
C378	174
C379	173

SYMBOL NO.	INDEX NO.
C380	174
C381	174
C382	174
C383	174
C384	174
C385	174
C386	173
C387	173
C388	174
C389	173

SYMBOL NO.	INDEX NO.
C390	174
C391	174
C392	174
C393	174
C394	174
C395	174
C396	174
C397	174
C398	170
C399	172

SYMBOL NO.	INDEX NO.
C400	174
C401	174
C402	173
C403	174
C404	174
C405	174
C406	174
C407	173
C408	174
C409	173

SYMBOL NO.	INDEX NO.
C410	174
C411	174
C412	173
C413	173
C414	173
C415	174
C416	173
C417	173
C418	173
C419	173

51. IPU BOARD (A109)

SYMBOL NO.	NDE} NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	NDEX NO.	SYMBOL NO.	NDEX NO.	SYMBOL NO.	[NDEX NO.	SYMBOL NO.	NDEX NO.	SYMBOL NO.	[NDEX NO.
C420	173	C430	174	C440	173	C450	173	C460	173	C470	174	C480	174
C421	173	C431	173	C441	174	C451	174	C461	174	C471	173	C481	174
C422	173	C432	173	C442	174	C452	174	C462	173	C472	174	C482	173
C423	173	C433	173	C443	173	C453	174	C463	173	C473	174	C483	174
C424	174	C434	173	C444	174	C454	174	C464	173	C474	174	C484	173
C425	174	C435	174	C445	174	C455	174	C465	173	C475	174	C485	171
C426	174	C436	174	C446	173	C456	173	C466	174	C476	174	C486	174
C427	174	C437	174	C447	173	C457	174	C467	174	C477	174	C487	174
C428	171	C438	174	C448	173	C458	173	C468	173	C478	174	C488	174
C429	174	C439	174	C449	173	C459	174	C469	174	C479	174	C489	174

CONNECTOR

IC

SYMBOL NO.	NDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	[NDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	NDEX NO.	SYMBOL NO.	INDEX NO.
C490	174	C500	174	C510	173	CN301	103	IC301	3	IC311	139	IC321	138
C491	174	C501	174			CN302	108	IC302	3	IC312	138	IC322	10
C492	174	C502	173			CN303	102	IC303	12	IC313	3	IC323	140
C493	174	C503	174			CN304	107	IC304	135	IC314	141	IC324	156
C494	174	C504	174			CN305	105	IC305	8	IC315	1	IC325	7
C495	174	C505	173			CN306	104	IC306	138	IC316	138	IC326	139
C496	174	C506	173			CN307	106	IC307	9	IC317	138	IC327	138
		C507	173			CN308	109	IC308	3	IC318	138	IC328	138
C498	170	C508	173			CN309	105	IC309		IC319	138	IC329	139
C499	172	C509	173					(socket)	110	IC320	13X	IC330	4
								IC31O	135				

51. IPU BOARD (A109)

SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.
IC331	138	IC341	151	IC351	138	IC361	143	IC371	148	IC381	134	IC391	136
IC332	6	IC342	139	IC352	139	IC362	117	IC372	120	IC382	128	IC392	142
IC333	137	IC343	139	IC353	138	IC363	143	IC373	150	IC383	134	IC393	142
IC334	137	IC344	139	IC354	138	IC364	124	IC374	149	IC384	142	IC394	142
IC335	139	IC345	5	IC355	138	IC365	143	IC375	150	IC385	144	IC395	142
IC336	139	IC346	139	IC356	143	IC366	120	IC376	134	IC386	154	IC396	127
IC337	151	IC347	138	IC357	143	IC367	149	IC377	116	IC387	146	IC397	143
IC338	138	IC348	138	IC358	115	IC368	116	IC378	148	IC388	144	IC398	143
IC339	138	IC349	2	IC359	143	IC369	142	IC379	126	IC389	130	IC399	127
IC340	151	IC350	139	IC360	132	IC370	148	IC380	142	IC390	131	IC400	143

SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.
IC401	121	IC411	124	IC421	143
IC402	121	IC412	123	IC422	127
IC403	121	IC413	147	IC423	125
IC404	130	IC414	118	IC424	124
IC405	129	IC415	133		
IC406	123	IC416	148		
IC407	149	IC417	122		
IC408	147	IC418	155		
IC409	149	IC419	119		
IC41O	149	IC420	122		

JP

SYMBOL NO.	INDEX NO.
JP300	192

LED

SYMBOL NO.	INDEX NO.
LED300	114
LED301	114
LED302	114
LED303	114
LED304	114
LED305	114
LED306	114
LED307	114
LED308	114
LED309	114

PIL

SYMBOL NO.	INDEX NO.	SYMBOL NO.	INDEX NO.
PIL300	162	PIL310	162
PIL301	162	PIL311	164
PIL302	166		
PIL303	165		
PIL304	165		
PIL305	165		
PIL306	165		
PIL307	165		
PIL308	165		
PIL309	163		

51. IPU BOARD (A109)

REG

SYMBOL NO.	INDEX NO.
REG300	152
REG301	153
REG302	153

RESISTOR

SYMBOL NO.	[NDEX NO.	SYMBOL NO.	[NDEX NO.	SYMBOL NO.	[NDEX NO.	SYMBOL NO.	NDEX NO.	SYMBOL NO.	[NDEX NO.	SYMBOL NO.	NDEX NO.
R300	187	R324	190	R348	185	R360	178	R379	179	R395	201
R301	187	R325	187	R349	185	R361	179	R380	187	R403	193
R302	187	R326	185	R350	185	R362	179	R381	187	R404	194
R314	187	R327	185	R351	185	R363	179	R382	187	R405	187
R315	187	R328	185	R352	185	R364	187	R386	187	R407	187
R316	179	R329	185	R354	186	R365	179	R387	187	R408	184
R320	179	R330	185	R355	187	R366	179	R390	179	R410	181
R321	181	R331	185	R356	186	R369	200	R391	179	R411	182
R322	200	R334	179	R358	185	R370	200	R393	182	R413	190
R323	200	R339	179	R359	180	R371	200	R394	198	R414	190

SYMBOL NO.	[NDEX NO.	SYMBOL NO.	INDEX NO.	SYMBOL NO.	[NDEX NO.	SYMBOL NO.	[NDEX NO.	SYMBOL NO.	NDEX NO.	SYMBOL NO.	[NDEX NO.	SYMBOL NO.	NDEX NO.
R415	187	R431	179	R441	178	R457	199	R467	191	R477	191	C487	200
R416	187	R432	179	R456	187	R458	177	R468	191	R478	191	C488	200
R421	190	R433	179	R447	187	R459	177	R469	191	R479	191	C489	200
R422	190	R434	185	R448	179	R460	177	R470	191	C480	191	R490	200
R423	190	R435	185	R449	179	R461	177	R471	191	C481	188	R491	200
R425	190	R436	178	R450	179	R462	177	R472	191	C482	188	R492	200
R426	190	R437	187	R451	179	R463	177	R473	191	C483	191	R493	200
R427	190	R438	185	R452	179	R464	177	R474	191	C484	191	R494	200
R429	183	R439	187	R455	182	R465	187	R475	191	C485	200	R495	200
R430	176	R440	178	R456	197	R466	177	R476	191	C486	200	R496	191

51. IPU BOARD (A109)

SYMBOL NO.	NDEX NO.
R497	202
R498	200
R499	200
R500	190
R501	190
R502	191
R503	191
R504	191
R505	191
R506	191

SYMBOL NO.	INDEX NO.
R507	191
R508	191
R509	191
R51O	195
R511	195
R512	191
R513	191
R514	189
R515	182
R516	191

SYMBOL NO.	[NDEX NO.
R517	191
R518	191
R519	191
R520	191
R521	191
R522	191
R523	191
R524	196
R525	191
R526	200

SYMBOL NO.	NDEX NO.
R527	191
R528	191
R529	191
R530	191
R531	191
R532	191
R533	190
R534	190
R535	191
R536	191

SYMBOL NO.	INDEX NO.
R537	191
R538	191
R539	202

SW

SYMBOL NO.	INDEX NO.
SW300	111

TEST POINT

SYMBOL NO.	NDEX NO.
TP300	101
TP301	101
TP302	101
TP303	101
TP304	101
TP305	101
TP306	101
TP307	101
TP308	101
TP309	101

SYMBOL NO.	INDEX NO.
TP310	101
TP311	101
TP312	101

TRANSISTOR

SYMBOL NO.	INDEX NO.
Q300	112
Q301	112

XTL

SYMBOL NO.	INDEX NO.
XTL300	157
XTL301	158

ZD

SYMBOL NO.	INDEX NO.
ZD300	113

51. IPU BOARD (A109)

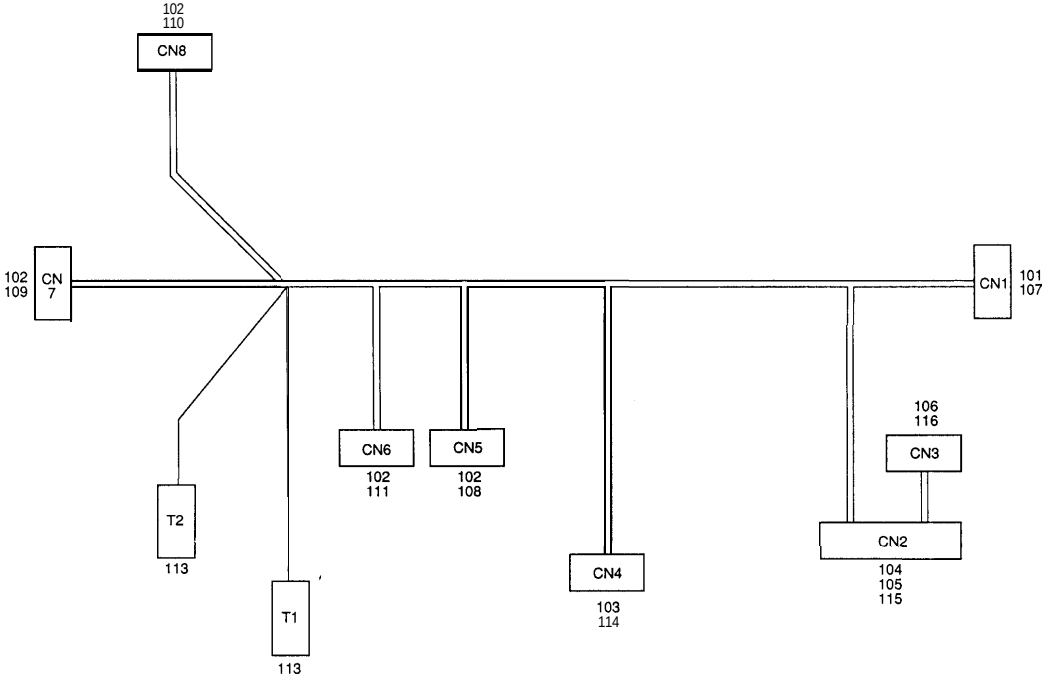
ndex No.	Part No.	Description	Q'ty Per Assembly
*	A109 5510	IPU Board	1
1	A049 5102	IC -TC23SC080AF-501	1
2	A049 5143	IC - RF5GV161-012	1
3	A109 5203	IC - 8K8BIT35NS	4
4	A109 5220	IC - RF5GU100-013	1
5	A109 5222	IC - RF5C221	1
6	A109 5223	IC - RF5GV094-015	1
7	A109 5224	IC - RF5C158	1
8	A109 5225	IC - RF5GU050-016	1
9	A109 5227	IC - MB87872	1
10	A109 5229	IC - HG62F43SI 7FH	1
11	A1095513	IC - 128K 8BIT120NS	1
12	A109 5514	IC - 128k 8BIT120NS	1

ndex No.	Part No.	Description	Q'ty Per Assembly
101	11010328	Connector Pin Contact	
102	11025003	Connector - 2P	
103	11025310	Connector - 5P	
104	11026334	Connector - 3P	
105	11026335	Connector - 4P	
106	11026339	Connector - 8P	
107	11026398	Connector - 2P	
108	11026567	Connector - 40P	
109	11026570	Connector - 60P	
110	11040720	IC Socket 32P	
111	12042156	Dip Switch -51 D-0501	
112	14010992	Transistor - 2SB1335	
113	14021172	Zener Diode - HZM6.8B	
114	14030313	Diode - TLR102A	
115	14071741	TTLIC - SN74LS32NS	
116	14071792	IC - SN74LS374NS	
117	14072051	IC - SN74LSOONS	
118	14072127	TC - 74 F00SJ	
119	14072128	TTLIC - 74 F02SJ	
120	14072135	TTLIC - 74 F74SJ	
121	14072137	IC - 74 F138SJ - TTL	
122	14072187	IC - SN74LS07NS	
123	14072249	IC -SN74LS174NS	
124	14072409	IC - SN74LS04M	
125	14072462	TTL - IC - SN74ALSOONS	
126	14072463	IC - SN74ALS08NS	
127	14072464	IC - SN74ALS74ANS	
128	14072588	IC - SN74ALS04BNS	
129	14072816	TTL - SN74ALS374NS	
130	14072817	IC - sN74ALs32Ns	
131	14073025	IC - SN74ALS02NS	
132	14073348	IC - SN74Ls02M	
133	14073350	IC - SN74LS74AM	
134	14073481	IC - SN74AS32NS	
135	14073814	IC - MB84256A-10L-PF	

ndex No.	Part No.	Description	Q'ty Per Assembly
136	14073948	IC - M51943BML	
137	14074090	IC - M66250FP	
138	14074091	IC - M66251AFP	
139	14074092	IC - M66253FP	
140	14074151	IC - 512KWX80BIT 80NS	
141	14074188	IC - HD64I5IO8F1O	
142	14074192	IC - SN74LS244M	
143	14074193	IC - SN74LS157M	
144	14074194	IC - SN74LS08M	
145	14074195	IC - HD74LS06FP	
146	14074196	IC - SN74LS151M	
147	14074197	IC - DM74ALS245ASJ	
148	14074198	IC - DM74ALS240ASJ	
149	14074199	IC - DM74ALS244ASJ	
150	14074275	IC - SN74AS240NS	
151	14074334	IC -MSM518222-30JS	
152	14080425	IC - NJM79L05	
153	14081011	IC - M5237ML	
154	14081029	IC - AD847JR	
155	14081033	IC - NJM2103M	
156	14081048	IC - MB86022PF	
157	15030498	Oscillator - 19.6608Mhz	
158	15030540	Oscillator -37.1 843Mhz	
159	16012957	Resistor - RCE9A472J	
160	16014021	Resistor - RCE9A103J	
161	16017697	Resistor - RCB8C103J	
162	16020918	Filter - 270PF - EMI	
163	16027077	Capacitor - 270PF±10% 50V	
164	16027085	Filter - TV50M	
165	16027092	Filter - MNF51 ROOP506	
166	16027096	Filter - TX14131NB	
167	16041728	Capacitor - 100μF110V	
168	16041729	Cap, Electrolytic, 10μF16V	
169	16042587	Capacitor - 100μF±2%	
170	16050283	Capacitor - 1μF	

ndex No.	Part No.	Description	Q'ty Per Assembly
171	16050435	Capacitor - 0.47μF +80% -20% 16V	
172	16061136	Capacitor - 1000PF	
173	16061139	Capacitor - 0.01μF±20%	
174	16061140	Capacitor - 0.1μF + 80%-20%	
175	16061477	Capacitor - 330PF	
176	16301121	Resistor -120Ω±5% 1 /8W	
177	16302361	Resistor -360Ω	
178	16303102	Resistor -1 K Ω 1/1 OW ±5%	
179	16303103	Resistor - 10K Ω 1/1 OW ±5%	
180	16303152	Resistor - 1.5K S2 - 1/10W	
181	16303153	Resistor - 15K Ω±5% 1/1 OW	
182	16303221	Resistor -220Ω±5% 1/1 OW	
183	16303222	Resistor - 2.2K Ω1/10W±5%	
184	16303302	Resistor - 3KΩ - 1/10W	
185	16303330	Resistor -33Ω±5% 1/1 OW	
186	16303471	Resistor -470Ω - 1/1 OW	
187	16303472	Resistor - 4.7K Ω 1/1 OW ±5%	
188	16304100	Resistor - 10(2 ~50%1/16W	
189	16304103	Resistor - 10KΩ±5% 1/16W	
190	16304330	Resistor -33 Ω±5% l/8W	
191	16304472	Resistor - 4.7K Ω±5%1/8W	
192	16330000	Resistor -0 Ω±1%1/10W	
193	16331001	Resistor- 1K Ω±1%1/10W	
194	16331401	Resistor - 1.4K Ω±1% l/8W	
195	16331601	Resistor - 1.6K Ω±1% l/8W	
196	16331801	Resistor - 1.8K Ω±1%1/8W	
197	16334301	Resistor - 4.3K Ω±1%1/8W	
198	16335901	Resistor - 5.9K Ω±1%1/10W	
199	16339311	Resistor - 9.3K Ω±1%1/8W	
200	16342209	Resistor -22.0Ω±1 % 1 /8W	
201	16344301	Resistor - 4.3KΩ±1%1/8W	
202	16346801	Resistor - 6.8K Ω±1%1/8W	

52. AC MAIN HARNESS (A109)



52. AC MAIN HARNESS (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
*	A1095372	AC Main Harness	1

ndex No.	Part No.	Description	Q'ty Per Assembly
101	11000863	Stud Pin	
102	11000864	Housing - AWG14-20	
103	11001241	Socket - MATE-N-LOCK	
104	11001339	Pin Contact	
105	11001344	Pin Contact	
106	11001669	Connector -1P	
107	11020941	Connector - 4P	
108	11020946	Housing - 3P	
109	11020947	Housing - 3P	
110	11020948	Housing - 4P	
111	11021017	Housing - 2P Red	
112	11021171	Connector - 5P	
113	11021404	Connector -1P	
114	11021517	Connector - 4P	
115	11025187	Connector - 14P	
116	11026213	Connector - 1P	

53. DECAL AND DOCUMENT (A109)

1

2

Copying to be Prohibited

Do not make copies of anything which is prohibited from copying by law. The following items are normally prohibited from copying by national law. Other items may be prohibited by local law.

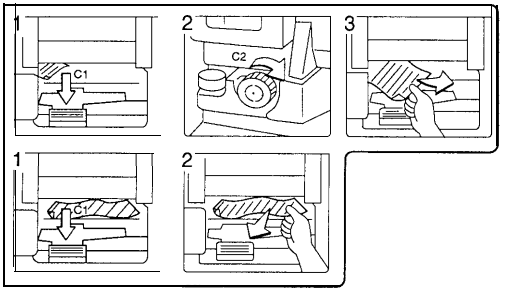
. Money
. Stamps
● Bonds
● Stocks
● Bank drafts
● Checks
. Passports
● Driver's licenses

3

- When the Add Toner indicator is on,add toner.
- Add only one bottle of toner at a time

4

6



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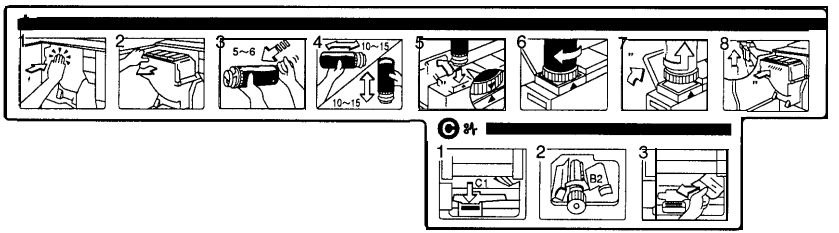
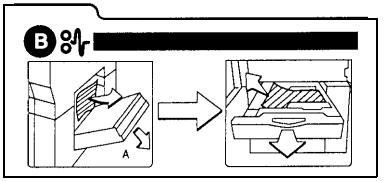


53. DECAL AND DOCUMENT (A109)

7



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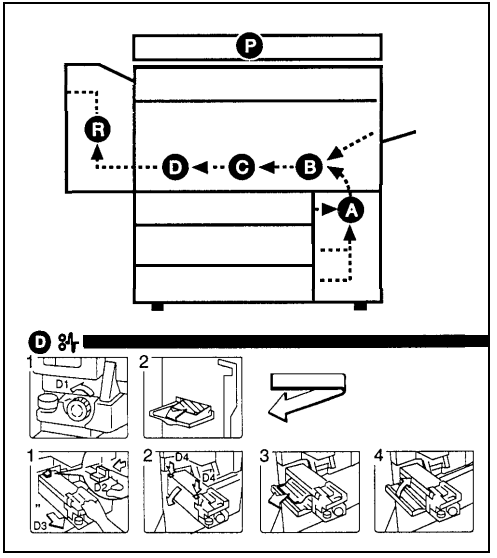

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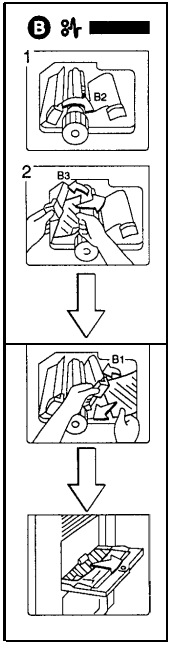

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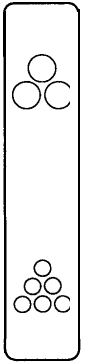
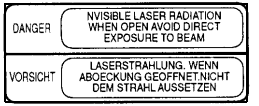
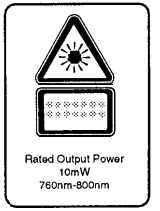


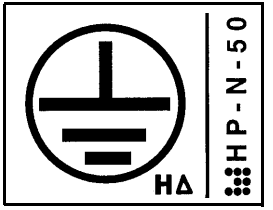
11


DANGER
INVISIBLE LASER RADIATION WHEN OPEN AVOID DIRECT EXPOSURE TO BEAM
VORSICHT
LASERSTRAHLUNG. WENN ABDECKUNG GEOFFNET.NICHT DEM STRAHL AUSSETZEN

12



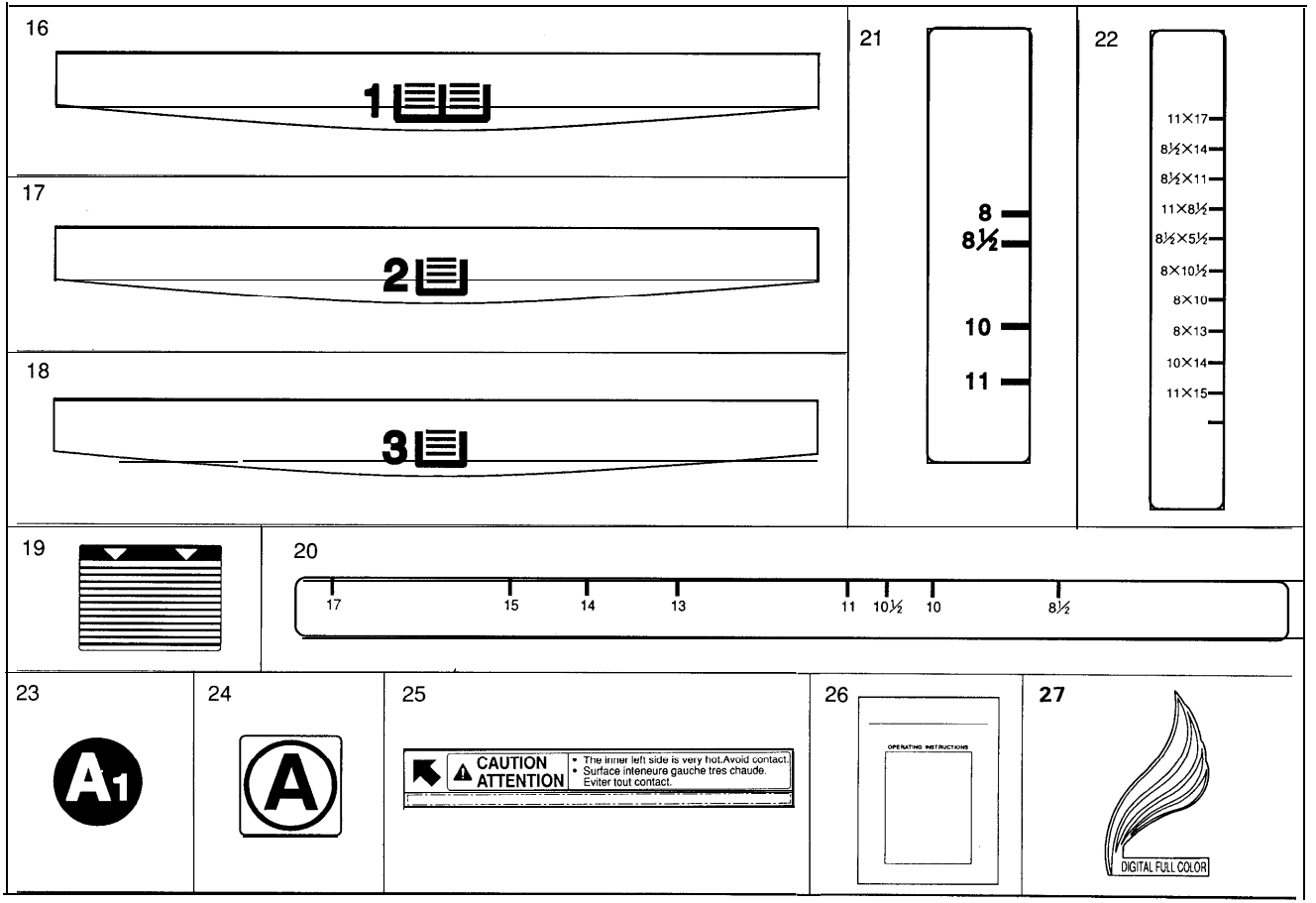
13



14

15

53. DECAL AND DOCUMENT (A109)

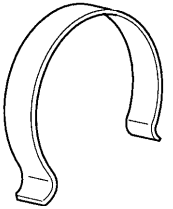
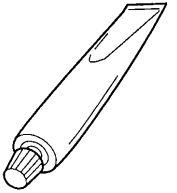
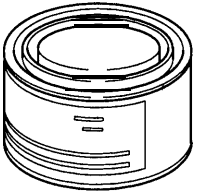
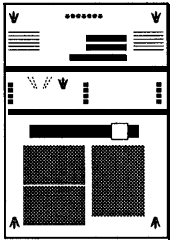
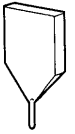
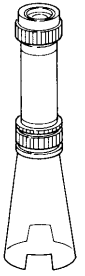
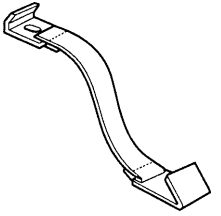


53. DECAL AND DOCUMENT (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
*	A072 1385	Caution Decal - Multi Language	1
1	52034165	Fusing Thermofuse Decal	2
2	A072 1383	Caution Decal - English	1
3	A092 1393	Decal - Adding Toner	1
4	A096 1300	Decal - Main Switch	1
5	A109 1550	Decal - Adding Toner	1
6	A109 1551	Decal - Misfeed Removal C	1
7	A109 1552	Decal - Misfeed Removal A	1
8	A109 1553	Decal - Misfeed Removal B	1
9	A109 1554	Decal - Misfeed Removal D	1
10	A109 1555	Decal - Total Counter	1
11	AA00 0035	Decal - LD	4
12	AA00 0445	Decal - LD	1
13	AA00 1190	Decal - Ground	1
14	AA00 1213	Decal - B2	1
15	AA00 1281	Decal - Lever	1
16	AA000143	Decal - No. 1	1
17	AA000138	Decal - No.2	1
18	AA000139	Decal - No.3	1
19	AA00 2010	Decal - Paper Level	3
20	AA00 2177	Decal - Side Fence - LT	1
20	AA002176	Decal - **Side Fence - A4**	1
21	AA002179	Decal - End Fence LT	1
21	AA002178	Decal - End Fence - A4	1
22	AA00 2181	Decal - LT	1
22	AA002184	Decal - A4	1
23	AA002192	Decal Paper Size - LT	1
23	AA00 2175	Decal - Paper Size - A4	1
24	AA00 1330	Decal - Misfeed Removal A	1
25	A1098607	Operating Instructions - EnglishLT	1
26	AA00 0537	Decal - High Voltage	1
27	A1091556	Decal - Full Color	1

ndex No.	Part No.	Description	Q'ty Per Assembly

54. SPECIAL TOOLS (A109)

1	2	3	4 	5 
6	7 	8 	9  11 	10 

54. SPECIAL TOOLS (A109)

ndex No.	Part No.	Description	Q'ty Per Assembly
1	52199300	MT-1	1
2	54209550	Silicone Oil	1
3	54429101	Setting Powder	1
4	A006 9103	Omega Clamp	1
5	A008 9502	Silicone Grease - G40M	1
6	A0129501	Scanner Positioning Pin -4pcs/set	1
7	A028 9300	Grease Barrierta JFE 55/2	1
8	A092 9503	C4 Color Test Chart (3pcs/set)	1
9	52058730	Counter Set Key	1
10	A109 9001	DJF Fixing Band	1
11	C4019503	20x Magnification Scope	1

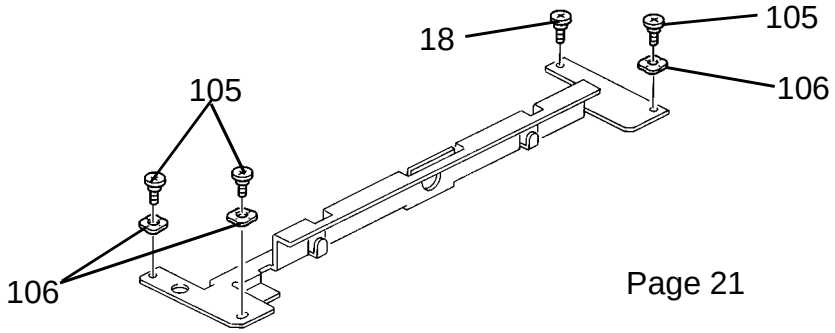
ndex No.	Part No.	Description	)'ty Per ıssembl y

ISSUED ON: May 15,' 94

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Parts Catalog			
Reason for Modification	Parts catalog correction			

Incorrect P/N	Correct P/N	Description	Q'ty Used	Parts Catalog		Destination
				Index No.	Page	
AY200002	AY200001	IC - C5C202	1 → 1	3	17	All
A1095378	A1095378	Exposure lamp Harness - 120V	1 → 1	7	21	-10, -17
	A1095380	Exposure lamp Harness - 230V	1 → 1	7	21	-22, -26, -27
AW110011	AW110017	Thermostat 140°C AC120V 15A	1 → 1	9	21	All
A1091483	------	Grounding Sheet	1 → 0	40	17	All
* 09513006B		Philips Screw With Flat Washer - M3 x 6	2 → 0	102	21	All
* 54472769		Stepped Screw	2 → 1	18	21	All
*	AA143025	Stepped Screw - M3	0 → 3	105**	21	All
* ------	08073109	Spring Washer - M4	0 → 3	106**	21	All

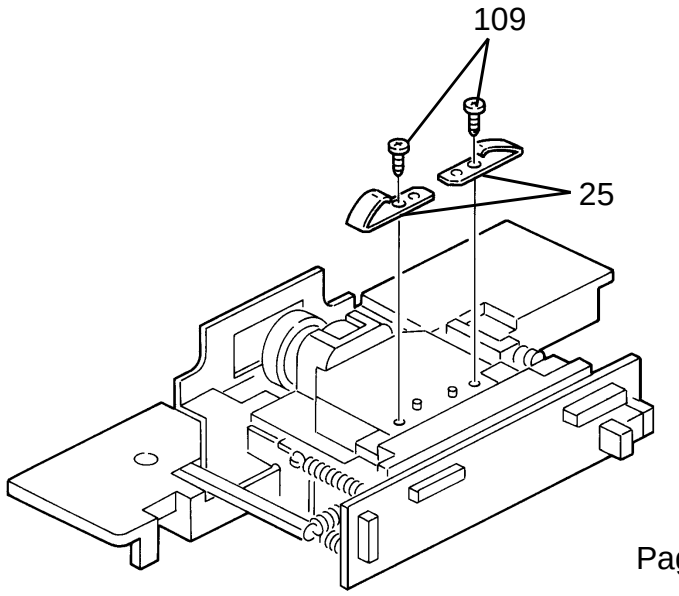
NOTE: * See illustration
** New index



DETAILS OF MODIFICATION

Incorrect P/N	Correct P/N	Description	Q'ty Used	Parts Catalog		Destination
				Index No.	Page	
A1095378 →	A1095378	Exposure Lamp Harness - 120V	1 → 1	14	23	-10, -17
→	A1095380	Exposure Lamp Harness - 230V	1 → 1	14	23	-22, -26, -27
A1095337	A1095344	CCD Harness - 3	1 → 1	19	23	All
* -----	A1091782	CCD Grounding Plate	0 → 2	** 25	23	All
* -----	04130062W	Tapping Screw - M3 x 6	0 → 2	** 109	23	All
A1095339	A1095370	Operation Panel Relay Harness	1 → 1	10	25	All
A1095309 →	A1095309	IPU Board Relay Harness - 120V	1 → 1	32	27	-10, -17
→	A1095367	IPU Board Relay Harness - 230V	1 → 1	32	27	-22, -26, -27
AA066550	AA066551	Stopper Spring - 22mm	2 → 2	7	31	All

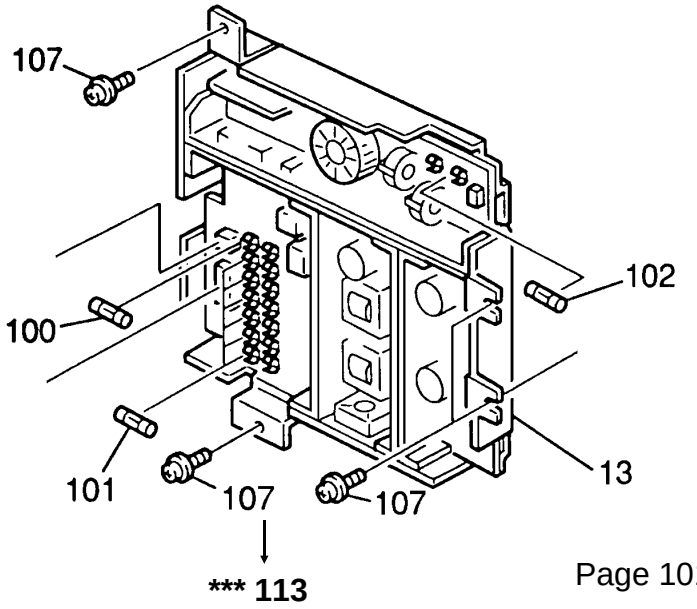
NOTE: * See illustration
** New index



DETAILS OF MODIFICATION

Incorrect P/N	Correct P/N	Description	Q'ty Used	Parts Catalog		Destination
				Index No.	Page	
AB013829	AB013912	Gear - 80Z	1 → 1	27	91	All
A1095372	A1095372	AC Main Harness - 120V	1 → 1	23	97	-10, -17
	A1095371	AC Main Harness - 230V	1 → 1	23	97	-22, -26, -27
A1095331	A1095331	Editor Relay Harness - 120V	1 → 1	30	99	-10, -17
	A1095368	Editor Relay Harness - 230V	1 → 1	30	99	-22, -26, -27
A0855671	A1095675	Power Supply Cord - 230V	1 → 1	14	101	-22, -26, -27
* 09644008B	09644008B	Tapping Screw With Flat Washer - M4 x 8	4 → 3	107	101	-10, -17 only
*	09544008B	Philips Screw - M4 x 8	0 → 1	*** 113	101	-10, -17 only
11026334	11026296	Connector - 3P	1 → 1	104	119	All

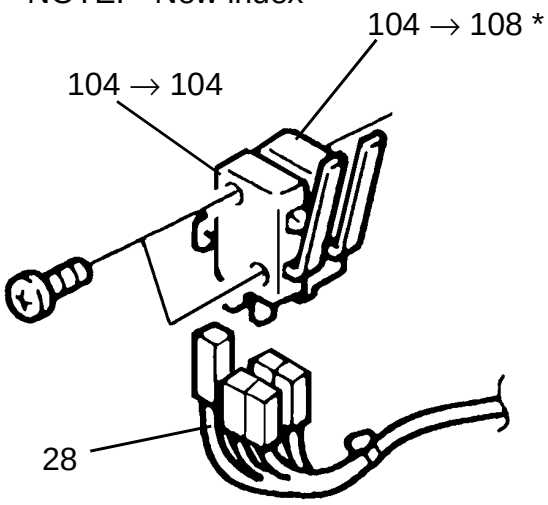
NOTE: * See illustration
** New index
*** 230V machines (-22, -26, -27) still uses #09644008B (Index #107)



DETAILS OF MODIFICATION

Incorrect P/N	Correct P/N	Description	Q'ty Used	Parts Catalog		Destination
				Index No.	Page	
12042233		Microswitch - AH715254N	2 → 0	104	39	All
	→ 12042356	Microswitch - AM51612A531	0 → 1	104	39	All
	→ 12042376	Microswitch - V - 162 - 3C25	0 → 1	* 108	39	All
12042376		Microswitch - V - 162 - 3C25	1 → 0	104	103	All
	→ 12042356	Microswitch - AM51612A531	0 → 1	104	103	All
12042233		Microswitch - AH715254N	3 → 0	105	103	All
	→ 12042376	Microswitch - V - 162 - 3C25	0 → 1	105	103	All
	→ 12042355	Microswitch - AM51632A531	0 → 2	* 110	103	All

NOTE: * New index



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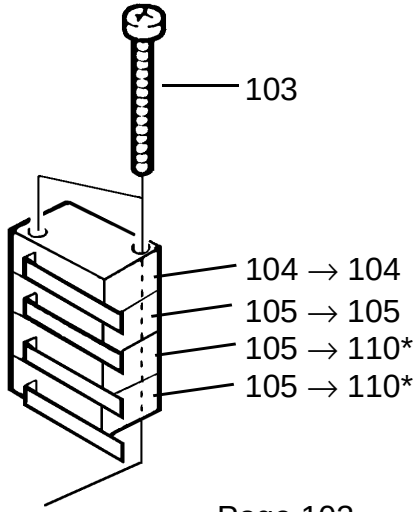

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S. Hamano, Assistant General Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	
NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	
NC 5006	115V / 60Hz	EUROPE etc.	A109-27	

ISSUED ON: May 31, '94

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Parts Catalog			
Reason for Modification	Parts Catalog Corrections			

Please correct your parts catalog as follows:

Incorrect P/N	Correct P/N	Description	Q'ty Used	Parts Catalog		Destination
				Index No.	Page	
A1095549		IC - 4MX8150NS	1 → 0	23	13	All
	A1095546	IC - AM27C020 - 150DC	0 → 1	23	13	All
A1095546		IC - 2MX8150NS	1 → 0	24	13	All
	A1095549	IC - AM27C4096 - 150DC	0 → 1	24	13	All
A1095547		IC - 4MX16150NS	1 → 0	25	13	All
	A1095548	IC - AM27C4096 - 150DC	0 → 1	25	13	All
A1095548		IC - 4MX16150NS	1 → 0	26	13	All
	A1095547	IC - AM27C4096 - 150DC	0 → 1	26	13	All
A1095213	A1095510	IPU Board	1 → 1	7	27	All
A1095206	A1095513	IC - 128K 8BIT 120NS	1 → 1	28	27	All
A1095207	A1095514	IC - 128K 8BIT 120NS	1 → 1	29	27	All

DETAILS OF MODIFICATION

Incorrect P/N	Correct P/N	Description	Q'ty Used	Parts Catalog		Destination
				Index No.	Page	
	A1097702	Fusing Unit Ass'y - 115V	0 → 1	*	79, 81, 83, 85	A109 - 17
	A1097703	Fusing Unit Ass'y - 230V	0 → 1	*	79, 81, 83, 85	A109 - 27
	A1097704	Fusing Unit Ass'y - 115V	0 → 1	*	79, 81, 83, 85	A109 - 10
	A1097705	Fusing Unit Ass'y - 230V	0 → 1	*	79, 81, 83, 85	A109 - 22
	A1097706	Fusing Unit Ass'y - 230V	0 → 1	*	79, 81, 83, 85	A109 - 26
	11070750	Fuse 3.15A 250V	2 → 2	104	99	All
A1098607 →		Operating Instructions - English LT	1 → 0	25	125	All
	→ AA000537	Decal - High Voltage	0 → 1	25	125	All
AA000537 →		Decal - High Voltage	1 → 0	26	125	All
	→ A1098607	Operating Instructions - English LT	0 → 1	26	125	A109 - 17

NOTE: Fusing Ass'y includes all components mentioned in page 79, 81, 83, 85

S. Hamano, Assistant General Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	
NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	
NC 5006	115V / 60Hz	EUROPE etc.	A109-27	

ISSUED ON: July 31, '94

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	AC Drive Board			
Reason for Modification	Due to vendor change			

Due to vendor change, the following parts have been modified.

Old P/N	New P/N	Description	Q'ty Used	Inter-cchange-ability	Parts Catalog	
					Index No.	Page
A1095421	A1095471	AC Drive Board - 110/115V	1 → 1	O/O	15	27
A1095325		DC Relay Harness	1 → 0		16	27
A1095374		AC Relay Harness	1 → 0		17	27
12081313		Relay - G5D - 22423T - LIS80 DC24V	1 → 0		18	27
A1095621	A1095671	AC Drive Board - 230V	1 → 1	O/O	15	27
A1095325		DC Relay Harness	1 → 0		16	27
A1095374		AC Relay Harness	1 → 0		17	27
12081313		Relay - G5D - 22423T - LIS80 DC24V	1 → 0		18	27

S. Hamano, Assistant General Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	From the 1st production
NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3514060001
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	6794060001
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	3E50740001
NC 5006	115V / 60Hz	EUROPE etc.	A109-27	A3514060119

ISSUED ON: July 31, '94

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Development Filter			
Reason for Modification	Due to vendor change			

Due to vendor change, the following parts have been modified.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
AA012063	AA012084	Development Filter	1 → 1	X/O	15	103
A1093306	A1093307	Filter Holder	1 → 1	X/O	16	103

S. Hamano, Assistant General Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	From the 1st production
NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3514040001
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	6794040001
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	3E50740001
NC 5006	115V / 60Hz	EUROPE etc.	A109-27	A3514040032

ISSUED ON: July 31, '94

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	IPU Board			
Reason for Modification	To improve the resolution of the image processing for color editing function for the closed loop area			

To improve the resolution of the image processing for color editing function for the closed loop area, the IPU Board has been modified.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1095510	A1095515	IPU Board	1 → 1	O/O	7 *	27 119

S. Hamano, Assistant General Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	From the 1st production
NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3514060001
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	6794060001
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	3E50740001
NC 5006	115V / 60Hz	EUROPE etc.	A109-27	A3514060074

ISSUED ON: July 31, '94

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Parts Catalog			
Reason for Modification	Parts Catalog Correction			

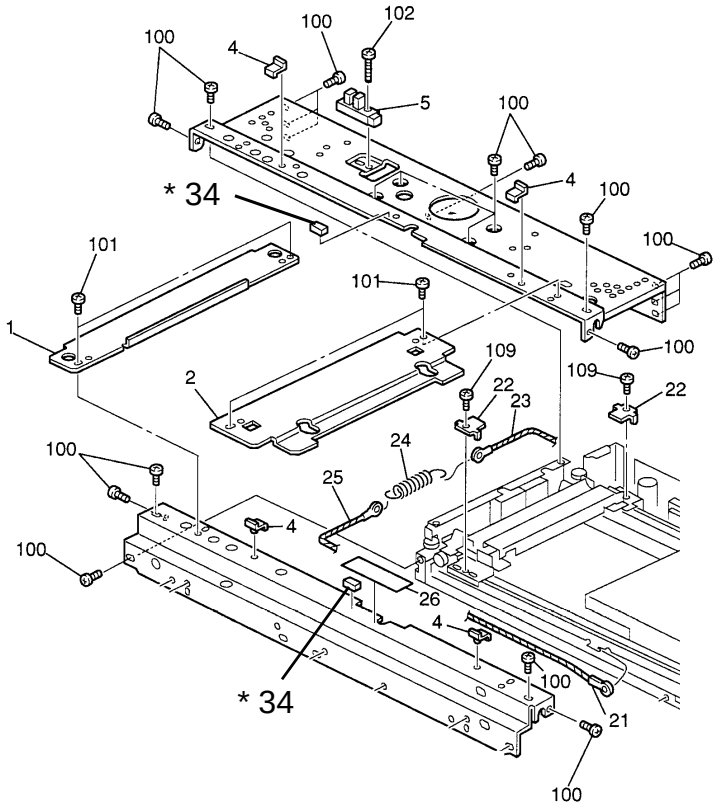
Please correct your parts catalog as follows:

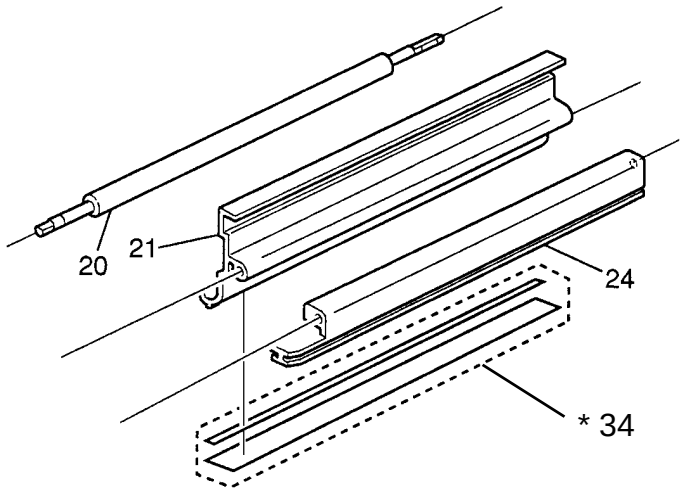
Incorrect P/N	Correct P/N	Description	Q'ty Used	Parts Catalog		Destination
				Index No.	Page	
A1077111	A1097111	Right Cover (NRG)	1 → 1	1	13	A109 - 10, 22
AF043074	AF043038	Copy Tray (NRG)	1 → 1	11	13	A109 - 10, 22
A1097918	A1097981	Rear Scale - A4 (INF)	1 → 1	17	13	A109 - 26
A1091459	A1097179	Key Top - User Color - LT (NRG)	3 → 3	22	17	A109 - 10, 22
*---	52151924	Cushion	0 → 2	**34	19	ALL
A5135366	A1095365	Harness - Paper Feed Door Switch	1 → 1	28	39	ALL
A5132780	A5137646	Vertical Transport Guide Cover (NRG)	1 → 1	31	39	A109 - 10, 22
A1097637	A1097673	By-pass Feed Cover (INF)	1 → 1	36	45	A109 - 26
AB013848	AB013843	Gear - 35Z	1 → 1	35	47	ALL
*---	A1099501	Drum Cleaning Entrance Seal	0 → 1	**34	53	ALL
12041545	12042185	Main Switch (NRG)	1 → 1	101	103	A109 - 10, 22
	12042186	Main Switch (INF)	1 → 1	101	103	A109 - 26

NOTE: * See illustration
** New index

DETAILS OF MODIFICATION

Incorrect P/N	Correct P/N	Description	Q'ty Used	Parts Catalog		Destination
				Index No.	Page	
A0721383	A0727088	Caution Decal (NRG)	1 → 1	2	125	A109 - 10, 22
	A0727388	Caution Decal (INF)	1 → 1	2	125	A109 - 26
A0961300	A0967060	Decal - Main Switch (NRG)	1 → 1	4	125	A109 - 10, 22
	A0967260	Decal - Main Switch (INF)	1 → 1	4	125	A109 - 26
A1098607	A1098697	Operating Instructions - English LT (NRG)	1 → 1	25	125	A109 - 10





DETAILS OF MODIFICATION

Please add the following parts on your the parts catalog as follows:
Parts Catalog

Parts Catalog		Newly Added P/N	Description	Destination
Index No.	Page			
100	101	11070752	Fuse - 5A 250V	A109 - 22, 26, 27
101	101	11070753	Fuse - 6.3A 250V	A109 - 22, 26, 27
102	101	11070752	Fuse - 5A 250V	A109 - 22, 26, 27
103	101	11070473	Circuit Breaker - 10A 250V	A109 - 22, 26, 27
25	125	A1098690	Operating Instructions - English A4 (NRG)	A109 - 22

Please correct the following P/N descriptions on your parts catalog.
Parts Catalog

Parts Catalog		P/N	Old Description	New Description	Destination
Index No.	Page				
100	101	11070391	125V 5A	Fuse - 5A 125V	A109 - 10, 17
101	101	11070392	125V 6.3A	Fuse - 6.3A 125V	A109 - 10, 17
102	101	11070629	125V 15A	Fuse - 15A 125V	A109 - 10, 17
103	101	11070693	Circuit Breaker - 18A 250V	Circuit Breaker - 18A 250V	A109 - 10, 17

S. Hamano, Assistant General Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	
NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	
NC 5006	115V / 60Hz	EUROPE etc.	A109-27	

ISSUED ON: August 31, '94

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	EPROM on the IPU Board			
Reason for Modification	To improve the resolution of the image processing for color editing function for the closed loop area			

Because of the IPU Board modification which is informed by MB # 5, the EP ROMs on the IPU Board have been modified too.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					IIndex No.	Page
A1095513	A1095517	IC - 128K 8BIT 120NS	1 → 1	X/X	28 11	27 119
A1095514	A1095518	IC - 128K 8BIT 120NS	1 → 1	X/X	29 12	27 119

S. Hamano, Assistant General Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	From the 1st production
NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3514060001
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	6794060001
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	3E50740001
NC 5006	115V / 60Hz	EUROPE etc.	A109-27	A3514060074

ISSUED ON: September 15, '94

Model	DFC α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Spring for registration guide plate			
Reason for Modification	To improve the paper transportation			

To improve the paper transportation, the following part has been modified.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
59213104	AA062288	Spring - Toner End Lever	2 → 2	X/O	26	47

S. Hamano, Assistant General Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	From the 1st production
NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3514050001
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	6794050001
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	3E50740001
NC 5006	115V / 60Hz	EUROPE etc.	A109-27	A3514050030

ISSUED ON: October 15, '94

Model	DFC α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Parts Catalog			
Reason for Modification	Parts catalog correction			

Please correct your parts catalog as follows:

Incorrect P/N	Correct P/N	Description	Q'ty Used	Parts Catalog	
				Index No.	Page
A1094151	AE041002	Oil Blade	1 → 1	16	83

S. Hamano, Assistant General Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	
NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	
NC 5006	230V /50Hz	EUROPE etc.	A109-27	

ISSUED ON: November 15, '94

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Separation Torque Limiter			
Reason for Modification	Parts standardization			

Due to parts standardization, the separation torque limiter has been changed as follows:

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A0602617		Separation Torque Limiter	3 → 3	O/O	24	43
	A0976000	Separation Torque Limiter				

1. Factory
   - The new part is used for the tray 1, 2 and 3 paper feed section.
   - The old part is still used for the by-pass feed section.
2. In the field part
   - The new part can be used for all paper feed sections because the new part has better performance.

S. Hamano, Assistant General Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	
NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	
NC 5006	230V /50Hz	EUROPE etc.	A109-27	

ISSUED ON: December 31, '94

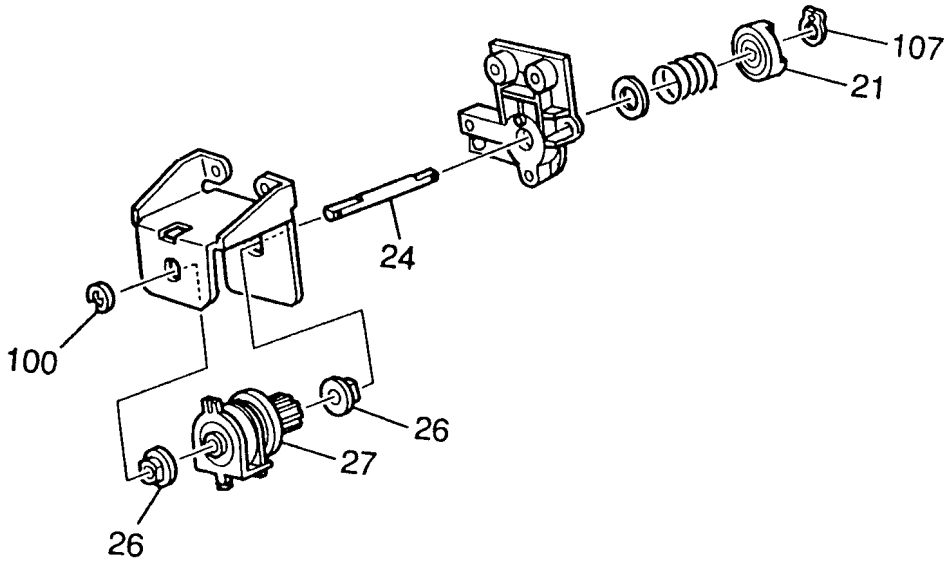
Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Transfer Belt Unit			
Reason for Modification	To improve durability			

To improve durability, the following parts have been modified.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1094629	A1094630	Joint - Clutch	1 → 1	X/X	21	87
AA145218	AA145248	Clutch Shaft	1 → 1	X/X x/o as a set	24	87
50530223		Bushing - 8 mm	n → n-2	X/	26	87
	C1052065	Bushing - 6 mm	0 → 2	/X	26	87
AX210042	AX210054	Spring Clutch	1 → 1	X/X	27	87
07200060B		Retaining Ring - M6	n → n-1	X/	100	87
	07200040B	Retaining Ring - M4	0 → 1	/X	100	87
07270080E		Retaining Ring - M8	n → n-1	X/	107	87
	07200040B	Retaining Ring - M4	0 → 1	/X	107	87

DETAILS OF MODIFICATION

To improve the durability of the spring clutch, the bushing inside the spring clutch (index # 27) has been changed to a ball bearing. Because the inside diameter of this new ball bearing is 6 mm (the inside diameter of the old type bushing was 8 mm), the joint-clutch (index #21), clutch shaft (index # 24), bushings (index 26), spring clutch (index # 27), Retaining Ring (index 100), and Retaining Ring (index 107) must be replaced as a set.



S. Hamano, Assistant General Manager
Technical Support Department

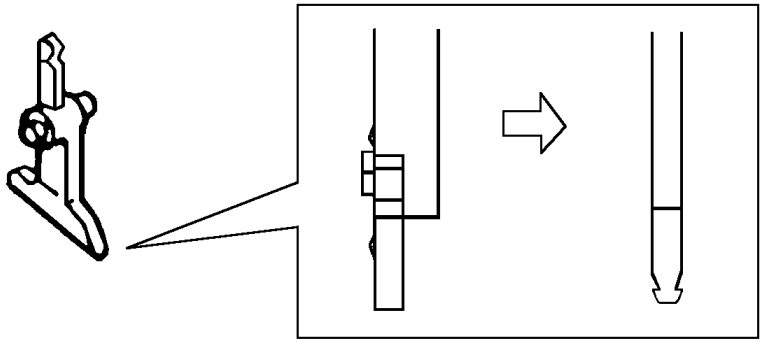
MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	From the 1st production
NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3514100001
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	6794100001
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	3E51140001
NC 5006	230V /50Hz	EUROPE etc.	A109-27	A3514100169

ISSUED ON: March 15, '95

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Hot Roller Stripper			
Reason for Modification	To reduce oil marks			

To reduce oil marks on thin paper, the hot roller stripper has been redesigned as shown in the illustration.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
AE044012	AE044016	Hot Roller Stripper	6 → 6	X/O	9	79



S. Hamano, Assistant General Manager
Technical Support Department

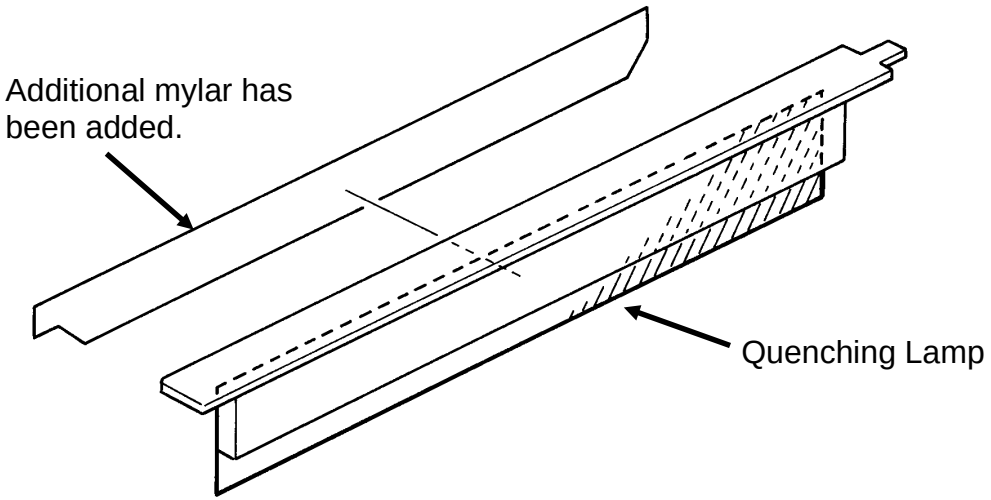
MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	From 1st production
NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515020001
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	6795020001
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	3E50250001
NC 5006	230V /50Hz	EUROPE etc.	A109-27	A351020001

ISSUED ON: April 15, '95

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Quenching Lamp			
Reason for Modification	To prevent the charge corona from being dirty with scattered toner.			

To prevent the charge corona from being dirty with scattered toner, an additional mylar has been added on the quenching lamp unit and the part number for the quenching lamp has been changed as follows.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1092375	A1092381	Quenshing Lamp	1 → 1	X/O	23	49



M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	From 1st production
NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515020001
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	6795020001
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	3E50250001
NC 5006	230V /50Hz	EUROPE etc.	A109-27	A3515020123

ISSUED ON: March 31, '95

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Change Corona Unit			
Reason for Modification	Part standardization with other models			

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
AD004070	AD004082	Change Corona Unit	1 → 1	O/O	11	49
AD022287	AD022329	Front End Block - Change	1 → 1	O/O	13	49
AD022288	AD022330	Rear End Black - Change	1 → 1	O/O	21	49

S. Hamano, Assistant General Manager
Technical Support Department

ISSUED ON: March 31, '95

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	From 1st production
NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	
NC 5006	230V /50Hz	EUROPE etc.	A109-27	

ISSUED ON: April 15, '95

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Tension Roller Bracket & Tension Support Roller Holder			
Reason for Modification	Vender change			

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1096115	A1096121	Tension Roller Bracket	1 → 1	O/O	16	69
A1096116	A1096122	Tension Support Roller Holder	2 → 2	O/O	19	69

M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	From 1st production
NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	
NC 5006	230V /50Hz	EUROPE etc.	A109-27	

ISSUED ON: April 15, '95

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Toner Tank Rear Side Plate & Development Unit Stopper			
Reason for Modification	Parts standardization with other models.			

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1093430	A1093427	Rear Side Plate - Toner Tank	1 → 1	O/O	15	55
A1093323	A1093332	Development Unit Stopper - B/C	1 → 1	O/O	11	107

M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	From 1st production
NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	
NC 5006	230V /50Hz	EUROPE etc.	A109-27	

ISSUED ON: April 15, '95

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	See below			
Reason for Modification	Parts standardization with other models.			

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1094614	AA132129	Spacer M8	1 → 1	O/O	8	87
AB030441	AB030266	Timing Pulley - 28Z	2 → 2	O/O	11	87
A1094612	A1094812	Tightener Arm	1 → 1	O/O	9	87
A1095744	A1095747	Interface Board 1 Bracket	1 → 1	O/O	15	95
A5132831	A5132832	Paper Size Sensor Bracket	1 → 1	O/O	8	101
A1095764	A1095765	Board Bracket B	1 → 1	O/O	13	99

M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	From 1st production
NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	
NC 5006	230V /50Hz	EUROPE etc.	A109-27	

ISSUED ON: April 15, '95

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Brackets for upper cover / operation panel			
Reason for Modification	Parts standardization with other models.			

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1091125	A1091124	Right Bracket - Operation Panel	1 → 1	O/O	31	19
A1091877	A1091879	Scale Bracket	1 → 1	O/O	1	19
A1091878	A1091886	Right Stay	1 → 1	O/O	2	19

M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	From 1st production
NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	
NC 5006	230V /50Hz	EUROPE etc.	A109-27	

ISSUED ON: April 30, '95

Model	DFC - α (for NRG only)	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Parts Catalog			
Reason for Modification	Parts Catalog Correction			

Please correct your parts catalog as follows.

Incorrect P/N	Correct P/N	Description	Q'ty Used	Parts Catalog	
				Index No.	Page
A5281071	A1216721	Platen Cover	1	1	15
A5281101	A1216722	Front Platen Cover	1	4	15
A5281111	A1216723	Rear Platen Cover	1	6	15
A5281121	A1216724	Original Holder	1	7	15

M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	
NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	
NC 5006	230V /50Hz	EUROPE etc.	A109-27	

ISSUED ON: May 31, '95

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Oscillator			
Reason for Modification	To improve durability			

To improve durability, the following parts have been modified.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
15030261		Oscillator - 9.8304Mhz	1 → 0		172	113
	15030563	Oscillator - 9.83MTZ40	0 → 1	X/O	172	113

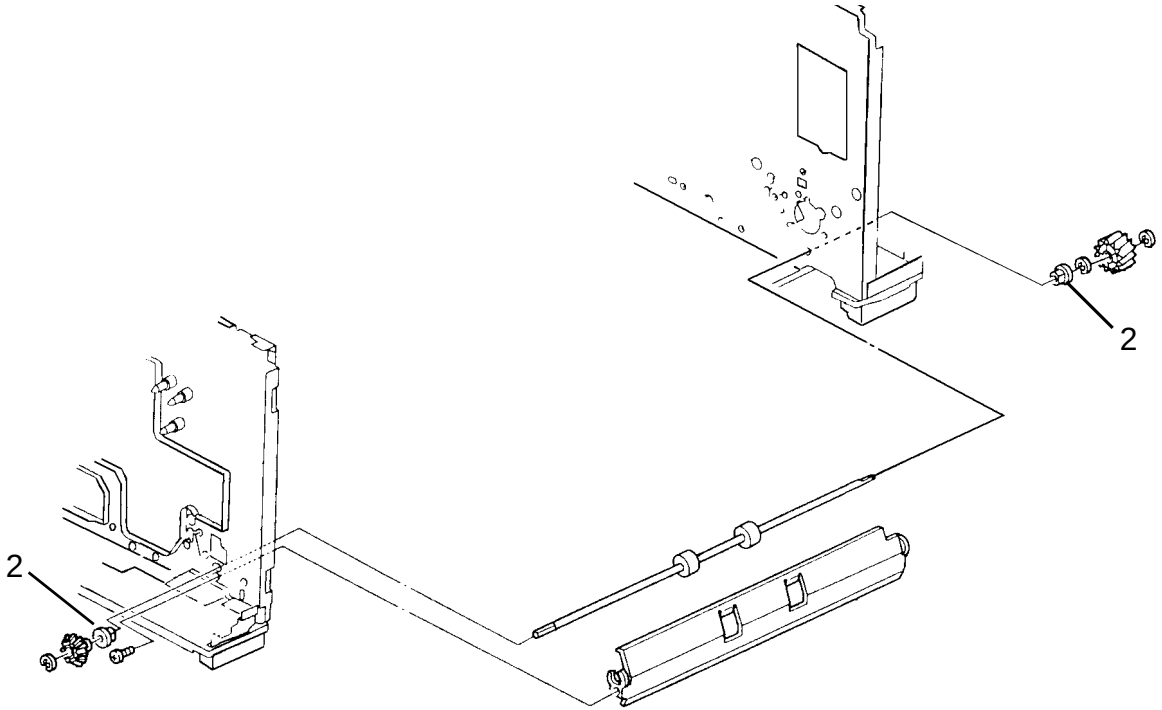
M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	678502XXXX
NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515010001
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	6795010001
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	3E50150001
NC 5006	230V /50Hz	EUROPE etc.	A109-27	A3515010121
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	From first production
Sharp AR-C860	230V /50Hz	EUROPE	A109-67	From first production

ISSUED ON: May 31, '95

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Bushing			
Reason for Modification	Parts standardization with other models			

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
50530447		Bushing 6mm	5 → 3		2	47
	AA082058	Bushing 6 x 10 x 9mm	0 → 2	O/O	44	47



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Technical Support Department

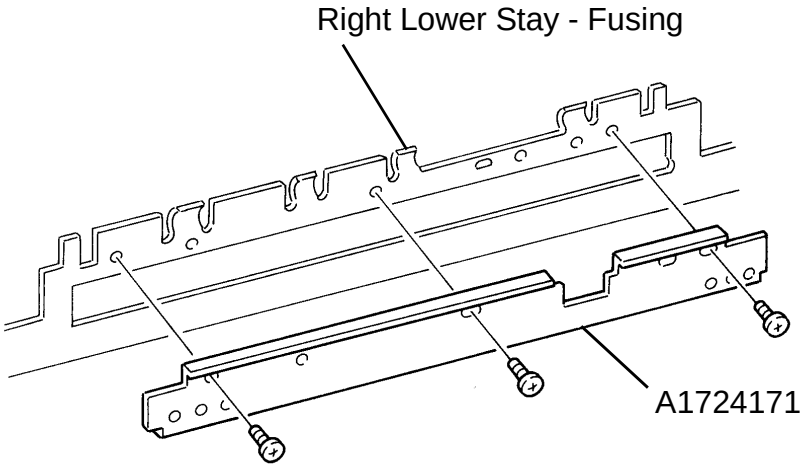
MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	
NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSAC 406 / REX CC8406	230V /50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V /50Hz	EUROPE etc.	A109-26	
NC 5006	230V /50Hz	EUROPE etc.	A109-27	
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	
Sharp AR-C860	230V /50Hz	EUROPE	A109-67	

ISSUED ON: June 30, '95

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Right Stay - Fusing			
Reason for Modification	Due to parts standardization			

Due to parts standardization, Right Lower Stay-Fusing (P/N A1094180) has been changed. The new right lower stay-fusing has an opening, so Right Stay - Fusing has been added. The part number of right lower stay-fusing remains the same since this part has not been shipped from our stock.

New P/N	Description	Q'ty Used	Parts Catalog	
			Index No.	Page
A1724171	Right Stay - Fusing	0 → 1	26	85



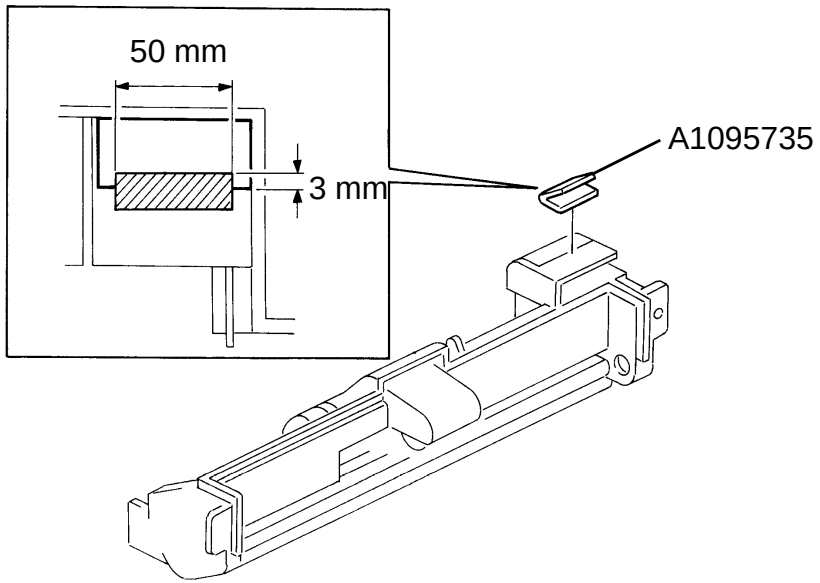
MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	
NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSAC 406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	
NC 5006	230V / 50Hz	EUROPE etc.	A109-27	
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	

ISSUED ON: June 30, '95

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Gasket 50			
Reason for Modification	To prevent SC193			

To prevent SC193, gasket - 50 has been added to the by-pass feed unit.
The gasket - 50 will ensure grounding of the metal parts in the by-pass feed unit.

New P/N	Description	Q'ty Used	Parts Catalog	
			Index No.	Page
A1095735	Gasket 50	0 → 1	47	45



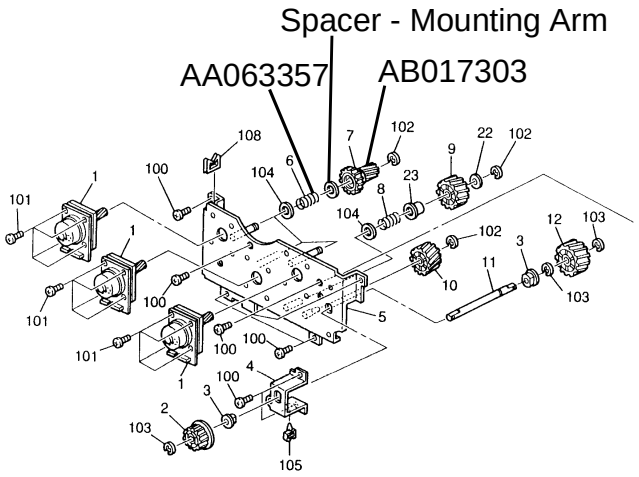
MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSAC 406 / SVN 6310	115V / 60Hz	USA, CANADA	A109-10	From 1st production
NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515030027
Ges 2706 / NSAC 406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795030001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50350001
NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515040052
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	From 1st production
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S115045001

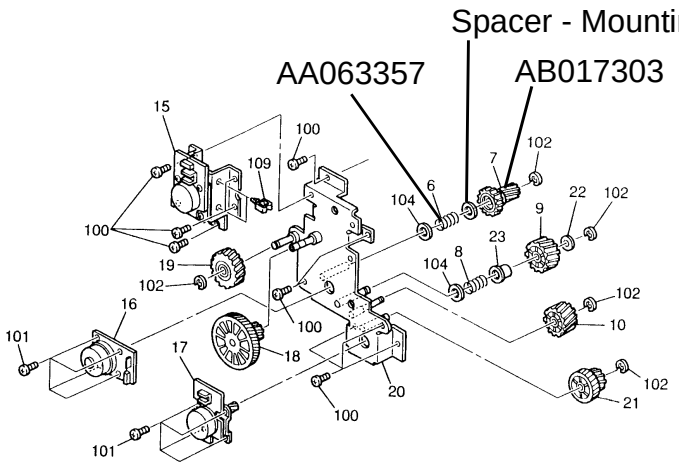
ISSUED ON: July 31, '95

Model	DFC-α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Spacer Mounting Arm			
Reason for Modification	To prevent noise			

In the development unit drive mechanism, the end of the pressure spring (P/N AA063357) may generate noise by contacting the molding gate on edge of gear - 20Z / 50Z (P/N AB017307). To prevent the noise, a spacer mounting arm has been added in between the pressure spring and the gear - 20Z / 50Z.

New P/N	Description	Q'ty Used	Parts Catalog	
			Index No.	Page
AA132094	Spacer - Mounting Arm	0 → 4	24	89





M. Iwasa, Manager
Technical Support Department

ISSUED ON: July 31, '95

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	From 1st production
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515020001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795020108
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50350001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515020123
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S115065001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S115045001

ISSUED ON: July 31, '95

Model	DFC-α (for SHARP 230V machine only)	Volt/Hz	**Date of Modification**	**Serial Number**
Modified Article	Parts Catalog			
Reason for Modification	Parts Catalog Correction			

Please correct your parts catalog as follows:

Old P/N	New P/N	Description	Parts Catalog	
			Index No.	Page
A1095641	A1095661	Operation Panel Board - A4	1	17

M. Iwasa, Manager
Technical Support Department

ISSUED ON: July 31, '95

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	

ISSUED ON: July 31, '95

Model	DFC-α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Interface Board 2 Bracket			
Reason for Modification	Due to parts standardization			

Due to parts standardization, the Interface Board 2 Bracket has been changed.

Old P/N	New P/N	Description	Q'ty	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1095743	A1725743	Interface Board 2 Bracket	1 → 1	O/O	11	99

M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	

ISSUED ON: July 31, '95

Model	DFC-α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Drum Mirror Ass'y			
Reason for Modification	Due to vendor change			

Due to a vendor change, the part number for the drum mirror assembly has been changed. The drum mirror sheet will not be provided as a service part since it is difficult to replace only this sheet in the field.

Old P/N	New P/N	Description	Q'ty	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1092130	A1092132	Drum Mirror Ass'y	1 → 1	O/O	12	29
A1092131	-----	Sheet - Drum Mirror	1 → 0		34	29

M. Iwasa, Manager
Technical Support Department

ISSUED ON: July 31, '95

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	

ISSUED ON: July 31, '95

Model	DFC-α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Second Mirror			
Reason for Modification	Parts standardization			

Due to parts standardization, the second mirror has been changed.

Old P/N	New P/N	Description	Q'ty	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1091921	A1091922	Second Mirror	2 → 2	O/O	1	21

M. Iwasa, Manager
Technical Support Department

ISSUED ON: July 31, '95

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	

ISSUED ON: July 31, '95

Model	DFC-α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Bushing 30mm			
Reason for Modification	Due to parts standardization			

Due to parts standardization, the 30 mm bushing has been changed.

Old P/N	New P/N	Description	Q'ty	Inter-change-ability	Parts Catalog	
					Index No.	Page
AE032012	AE032017	Bushing 30mm	2 → 2	O/O	15	85

M. Iwasa, Manager
Technical Support Department

ISSUED ON: July 31, '95

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	

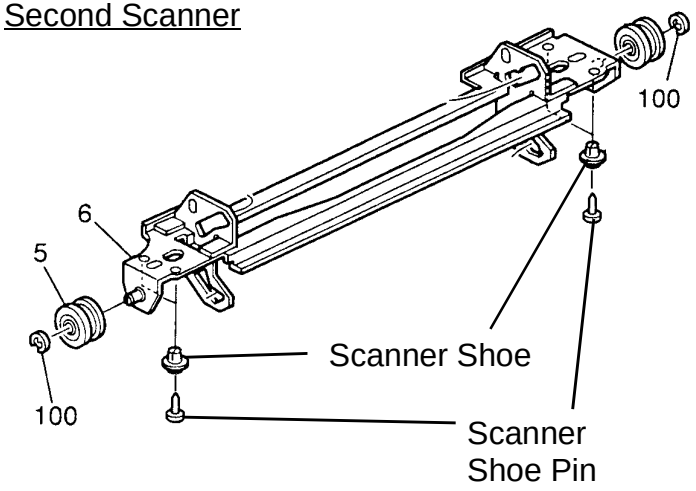
ISSUED ON: August 31, '95

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Scanner Shoe Pin			
Reason for Modification	To secure the scanner shoe			

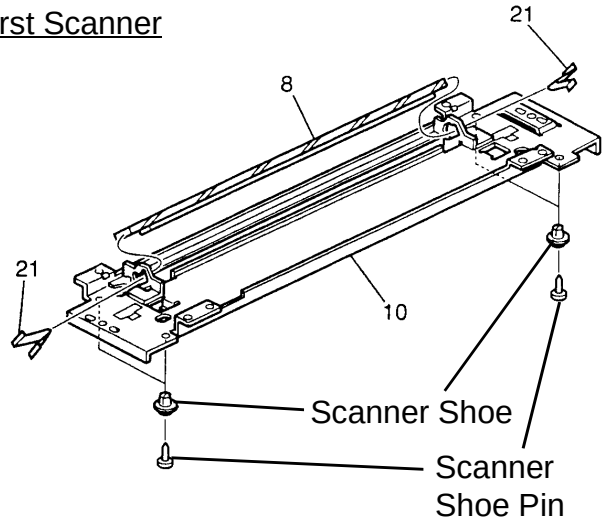
To secure the scanner shoe to the scanner bracket, scanner shoe pins have been added.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
	A0961873	Scanner Shoe Pin	0 → 8		22	21

Second Scanner



First Scanner



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Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	From 1st production
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A351504001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795047001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50450001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A351504052
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	From first production
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	From first production

ISSUED ON: August 31, '95

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	IPU, Main Board ROM, Operation Panel ROM			
Reason for Modification	To improve the copy quality			

In order to improve the copy quality, the following modification has been made. This modification enables a selection of one of the following three modes. By using a user tool, the user may obtain the best copy quality depending on the type of original used (in photo mode).

1. Printed Photo
2. Glossy Photo
3. Copied Photo

Also, image separation in auto letter [line]/photo mode is improved to reduce separation errors.

Please refer to pages 3 to 9 of this MB for the component table of the new IPU board.

Please refer to RTB No. 10 for a detailed explanation of the modification.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Destination	Parts Catalog	
						Index No.	Page
A1095515	A1095519	IPU Board	1 → 1	X/X	All	7	27
A1095517	A1095528	IC - 128K 8BIT 120NS	1 → 1	X/X	All	28	27
A1095518	A1095529	IC - 128K 8BIT 120NS	1 → 1	X/X	All	29	27
A1095541	A1095553	Operation Panel Board - LT	1 → 1	X/X	A109-10, -17, -57	1	17
A1095641	A1095573	Operation Panel Board - A4	1 → 1	X/X	A109-22	1	17
A1095547	A1095557	IC - AM27C4096 - 150DC	1 → 1	X/X	A109-10, -17, -57	7	17
A1095548	A1095558	IC - AM27C4096 - 150DC	1 → 1	X/X	A109-10, -17, -57	4	17

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Destination	Parts Catalog	
						Index No.	Page
A1095549	A1095559	IC - AM27C4096-150DC	1 → 1	X/X	A109-10, -17, -57	5	17
	A1095579	IC - AM27C4096-150DC	1 → 1	X/X	A109-22	5	17
A1095546	A1095560	IC - AM27C4096-150DC	1 → 1	X/X	A109-10, -17, -57	6	17
	A1095580	IC - AM27C020-150DC	1 → 1	X/X	A109-22	6	17
A1095647	A1095577	IC - AM27C4096-150DC	1 → 1	X/X	A109-22	7	17
A1095648	A1095578	IC - AM27C4096-150DC	1 → 1	X/X	A109-22	4	17
A1095263	A1095101	Main Control Board	1 → 1	X/O	All	8	99
A1095265	A1095104	IC - 4M8150SN	1 → 1	X/O	All	28	99
A1095267	A1095106	IC - 4M8120SN	1 → 1	X/O	All	4	99

51. IPU BOARD (A109)

Index No.	Part No.	Description	Q'ty Per Assembly
*	A109 5519	IPU Board	
1	A049 5102	IC - TC23SC080AF-501	
2	A109 5203	IC - 8K8BIT35NS	
3	A109 5220	IC - RF5GU100-013	
4	A109 5222	IC - RF5C221	
5	A109 5224	IC - RF5C158	
6	A109 5225	IC - RF5GU050-016	
7	A109 5227	IC - MB87872	
8	A109 5229	IC - HG62F43S17FH	
9	A109 5230	IC - MPD65656GD-021-LML	
10	A109 5528	IC - 128K 8BIT120NS	
11	A109 5529	IC - 128K 8BIT120NS	
12	A134 5209	IC - LSI - MSM518222-30JS-1	

Index No.	Part No.	Description	Q'ty Per Assembly
100	1102 5003	Connector - 2P	
101	1102 5310	Connector - 5P	
102	1102 6334	Connector - 3P	
103	1102 6335	Connector - 4P	
104	1102 6339	Connector - 8P	
105	1102 6398	Connector - 2P	
106	1102 6567	Connector - 40P	
107	1102 6570	Connector - 60P	
108	1102 7021	Connector - 60P	
109	1204 2156	Dip Switch - 51D-0501	
110	1401 0992	Transistor - 2SB1335	
111	14021172	Zener Diode - HZM6.8B	
112	1403 0313	Diode - TLR102A	
113	1407 1741	TTLIC - SN74LS32NS	
114	1407 1792	IC - SN74LS374NS	
115	1407 2051	IC - SN74LS00NS	
116	1407 2127	TC - 74F00SJ	
117	1407 2128	TTLIC - 74F02SJ	
118	1407 2137	IC - 74F138SJ - TTL	
119	1407 2187	IC - SN74LSO07NS	
120	1407 2249	IC - SN74LS174NS	
121	14072409	IC - SN74LSO4M	
122	1407 2462	TTL - IC - SN74ALSOONS	
123	1407 2463	IC - SN74ALS08NS	
124	1407 2464	IC - SN74ALS74ANS	
125	1407 2588	IC - SN74LS04BNS	
126	1407 2816	TTL - SN74ALS374NS	
127	1407 2817	IC - SN74ALS32NS	
128	1407 3025	IC - SN74ALS02NS	
129	1407 3348	IC - SN74LS02M	
130	1407 3350	IC - SN74LS74AM	
131	1407 3481	IC - SN74AS32NS	
132	1407 4090	IC - M66250FP	
133	1407 4091	IC - M66251AFP	

51. IPU BOARD (A109)

Index No.	Part No.	Description	Q'ty Per Assembly
134	1407 4092	IC - M66253FP	
135	1407 4188	IC - HD6415108F10	
136	1407 4192	IC - SN74LS244M	
137	1407 4193	IC - SN74LS157M	
138	1407 4194	IC - SN74LS08M	
139	1407 4195	IC - HD74LS06FP	
140	1407 4196	IC - SN74LS151M	
141	1407 4197	IC - DM74ALS245ASJ	
142	1407 4198	IC - DM74ALS240ASJ	
143	1407 4199	IC - DM74ALS244ASJ	
144	1407 4275	IC - SN74AS240NS	
145	1408 0425	IC - NJM79L05	
146	1408 1011	IC - M5237ML	
147	1408 1029	IC - AD847JR	
148	1408 1033	IC - NJM2103M	
149	1503 0498	Oscillator - 19.6608Mhz	
150	1503 0540	Oscillator - 37.1843Mhz	
151	1601 2957	Resistor - RCE9A472J	
152	1601 4021	Resistor - RCE9A103J	
153	1601 7697	Resistor - RCB8C103J	
154	1602 0918	Filter - 270PF - EMI	
155	1602 7077	Capacitor - 270PF ±10% 50V	
156	1602 7085	Filter - TV50M	
157	1602 7087	Filter - TH18103MA	
158	1602 7092	Filter - MNF51R00P506	
159	1602 7096	Filter - TX1413NB	
160	1604 2587	Capacitor - 100μF ±2%	
161	1605 0283	Capacitor 1μF	
162	1605 0435	Capacitor - 0.4μF +80% -20% 16V	
163	1606 1136	Capacitor - 1000PF	
164	1606 1139	Capacitor - 0.01μF ±20%	
165	1606 1140	Capacitor - 0.1μF +80%-20%	
166	1606 1477	Capacitor 330PF	
167	1630 1121	Resistor - 120Ω ±5% 1/8W	
168	1630 3102	Resistor - 1KΩ 1/10W ±5%	
169	1630 3103	Resistor - 10KΩ 1/10W ±5%	
170	1630 3152	Resistor - 1.5KΩ 1/10W	
171	1630 3153	Resistor - 15KΩ ±5% 1/10W	
172	1630 3221	Resistor - 220Ω ±5% 1/10W	
173	1630 3222	Resistor - 2.2KΩ 1/10W ±5%	
174	1630 3302	Resistor - 3KΩ 1/10W	
175	1630 3330	Resistor - 33Ω ±5% 1/10W	
176	1630 3471	Resistor - 470Ω 1/10W	
177	1630 3472	Resistor - 4.7KΩ 1/10W ±5%	
178	1630 4100	Resistor - 10Ω ±50% 1/16W	
179	1630 4103	Resistor - 10KΩ ±5% 1/16W	
180	1630 4330	Resistor - 33Ω ±5% 1/8W	
181	1630 4472	Resistor - 4.7KΩ ±5% 1/8W	
182	1633 0000	Resistor - 0Ω ±1% 1/10W	
183	1633 1001	Resistor - 1KΩ ±1% 1/10W	
184	1633 1401	Resistor - 1.4KΩ ±1% 1/8W	
185	1633 1601	Resistor - 1.6KΩ ±1% 1/8W	
186	1633 1801	Resistor - 1.8KΩ ±1% 1/8W	
187	1633 4301	Resistor - 4.3KΩ ±1% 1/8W	
188	1633 5901	Resistor - 5.9KΩ ±1% 1/10W	
189	1633 9311	Resistor - 9.3KΩ ±1% 1/8W	
190	1634 2209	Resistor - 22.0Ω ±1% 1/8W	
191	1634 4301	Resistor - 4.3KΩ ±1% 1/8W	
192	1634 6801	Resistor - 6.8KΩ ±1% 1/8W	
193	1642 0101	Capacitor 100μF ±20%10V	
194	1643 2100	Capacitor 10μF ±20%25V	
195	1902 0010	IC256K X8 100NS G1	

51. IPU BOARD (A109)

AR

SYMBOL NO.	INDEX NO.
AR300	151
AR301	151
AR302	151
AR303	153
AR304	153
AR305	152
AR306	152
AR307	152
AR308	152
AR309	151

SYMBOL NO.	INDEX NO.
AR310	151
AR311	151

CAPACITOR

SYMBOL NO.	INDEX NO.
C300	193
C301	193
C302	193
C303	160
C304	194
C305	193
C306	194
C307	193
C308	194
C309	194

SYMBOL NO.	INDEX NO.
C310	193
C311	193
C312	193
C313	164
C314	164
C315	164
C316	164
C317	164
C318	164
C319	165

SYMBOL NO.	INDEX NO.
C320	165
C321	165
C325	164
C326	164
C327	164
C328	164
C329	164
C331	165
C332	165
C333	165

SYMBOL NO.	INDEX NO.
C334	165
C335	165
C342	164
C343	164
C344	164
C345	166
C346	164
C347	164
C348	164
C349	164

SYMBOL NO.	INDEX NO.
C350	166
C351	166
C355	165
C359	164
C360	164
C361	164
C362	165
C363	165
C364	165
C365	165

SYMBOL NO.	INDEX NO.
C369	164
C370	164
C371	164
C372	164
C373	164
C374	165
C375	165
C376	165
C377	165
C378	165

SYMBOL NO.	INDEX NO.
C379	164
C380	165
C381	165
C386	164
C387	164
C388	165
C389	164
C390	165
C392	165
C393	165

SYMBOL NO.	INDEX NO.
C395	165
C396	165
C397	165
C398	161
C399	163
C400	165
C401	165
C402	164
C406	165
C407	164

SYMBOL NO.	INDEX NO.
C408	165
C409	164
C410	165
C411	165
C412	164
C413	164
C414	164
C415	165
C416	164
C417	164

SYMBOL NO.	INDEX NO.
C418	164
C419	164
C420	164
C421	164
C422	164
C423	164
C424	165
C427	165
C428	162
C429	165

SYMBOL NO.	INDEX NO.
C430	165
C431	164
C432	164
C433	164
C434	164
C435	165
C436	165
C437	165
C438	165
C439	165

SYMBOL NO.	INDEX NO.
C440	164
C441	165
C442	165
C443	164
C444	165
C445	165
C446	164
C447	164
C448	164
C449	164

51. IPU BOARD (A109)

SYMBOL NO.	INDEX NO.
C450	164
C451	165
C452	165
C453	165
C454	165
C455	165
C456	164
C457	165
C458	164
C459	165

SYMBOL NO.	INDEX NO.
C460	164
C461	165
C462	164
C463	164
C464	164
C465	164
C466	165
C467	165
C468	164
C470	165

SYMBOL NO.	INDEX NO.
C471	164
C472	165
C473	165
C474	165
C475	165
C476	165
C477	165
C478	165
C479	165
C480	165

SYMBOL NO.	INDEX NO.
C481	165
C482	164
C483	165
C484	164
C485	162
C486	165
C487	165
C488	165
C489	165
C490	165

SYMBOL NO.	INDEX NO.
C491	165
C492	165
C493	165
C494	165
C495	165
C496	165
C498	161
C499	163
C500	165
C501	165

SYMBOL NO.	INDEX NO.
C502	164
C503	165
C504	165
C505	164
C506	164
C508	164
C509	164
C510	165
C511	165
C512	165

SYMBOL NO.	INDEX NO.
C513	165
C514	165
C515	165
C516	165
C517	165
C518	165
C519	165
C520	165
C521	165
C522	165

SYMBOL NO.	INDEX NO.
C523	165
C524	165
C525	165

CONNECTOR

SYMBOL NO.	INDEX NO.
CN301	101
CN302	106
CN303	100
CN304	105
CN305	103
CN306	102
CN307	104
CN308	107
CN309	103
CN310	108

IC

SYMBOL NO.	INDEX NO.
IC301	2
IC302	2
IC303	10
IC305	6
IC306	133
IC307	7
IC308	2
IC309	11
IC311	134
IC313	2

SYMBOL NO.	INDEX NO.
IC314	135
IC315	1
IC316	133
IC317	133
IC318	133
IC319	133
IC320	133
IC321	133
IC322	8
IC324	156

SYMBOL NO.	INDEX NO.
IC325	5
IC326	134
IC330	3
IC333	3
IC334	132
IC335	132
IC336	132

SYMBOL NO.	INDEX NO.
IC345	4
IC346	134
IC347	133
IC351	133
IC352	134
IC356	137
IC357	137
IC358	113
IC359	137
IC360	129

SYMBOL NO.	INDEX NO.
IC361	137
IC362	115
IC363	137
IC364	121
IC365	137
IC367	143
IC368	114
IC369	136
IC370	142
IC371	142

51. IPU BOARD (A109)

SYMBOL NO.	INDEX NO.
IC373	144
IC374	143
IC375	144
IC376	131
IC377	114
IC378	142
IC379	123
IC380	136
IC381	131
IC382	125

SYMBOL NO.	INDEX NO.
IC383	131
IC384	136
IC385	139
IC386	147
IC387	140
IC388	138
IC389	127
IC390	128
IC392	136
IC393	136

SYMBOL NO.	INDEX NO.
IC394	136
IC395	136
IC396	124
IC397	137
IC398	137
IC399	124
IC400	137
IC401	118
IC402	118
IC403	118

SYMBOL NO.	INDEX NO.
IC404	127
IC405	126
IC406	120
IC407	143
IC408	141
IC409	143
IC410	143
IC411	121
IC412	120
IC413	141

SYMBOL NO.	INDEX NO.
IC414	116
IC415	130
IC416	142
IC417	119
IC418	148
IC419	117
IC420	119
IC422	124
IC423	122
IC424	195

SYMBOL NO.	INDEX NO.
IC425	195
IC426	134
IC427	133
IC428	134
IC429	12
IC430	12
IC431	12
IC432	9
IC433	134
IC434	134

SYMBOL NO.	INDEX NO.
IC435	133
IC436	133
IC437	133
IC438	133

JP

SYMBOL NO.	INDEX NO.
JP300	182

LED

SYMBOL NO.	INDEX NO.
LED308	112
LED309	112

FIL

SYMBOL NO.	INDEX NO.
FIL300	154
FIL301	154
FIL302	159
FIL303	158
FIL304	158
FIL305	158
FIL306	158
FIL307	158
FIL308	158
FIL309	155

SYMBOL NO.	INDEX NO.
FIL310	154
FIL311	156
FIL312	157
FIL313	157
FIL314	157
FIL315	157
FIL316	157

REG

SYMBOL NO.	INDEX NO.
REG300	145
REG301	146
REG302	146

RESISTOR

SYMBOL NO.	INDEX NO.
R300	177
R301	177
R302	177
R314	177
R315	177
R316	169
R320	169
R321	171
R322	190
R323	190

SYMBOL NO.	INDEX NO.
R324	180
R325	177
R326	175
R327	175
R328	175
R329	175
R330	175
R334	169
R339	169
R348	175

51. IPU BOARD (A109)

SYMBOL NO.	INDEX NO.
R349	175
R350	175
R351	175
R352	175
R354	176
R355	177
R356	176
R358	175
R359	170
R360	168

SYMBOL NO.	INDEX NO.
R361	169
R362	169
R363	169
R364	177
R365	169
R366	169
R369	190
R370	190
R371	190
R379	169

SYMBOL NO.	INDEX NO.
R380	177
R381	177
R382	177
R386	177
R387	177
R390	169
R391	169
R393	172
R394	188
R395	187

SYMBOL NO.	INDEX NO.
R403	183
R404	184
R405	177
R407	177
R408	174
R410	171
R411	172
R413	180
R414	180
R415	177

SYMBOL NO.	INDEX NO.
R416	177
R421	180
R422	180
R423	180
R425	180
R426	180
R427	180
R429	173
R430	167
R432	169

SYMBOL NO.	INDEX NO.
R433	169
R434	175
R435	175
R436	168
R437	177
R438	175
R439	177
R440	168
R441	168
R447	177

SYMBOL NO.	INDEX NO.
R448	169
R449	169
R450	169
R451	169
R452	169
R453	169
R455	172
R456	191
R457	189
R465	177

SYMBOL NO.	INDEX NO.
R467	181
R468	181
R469	181
R470	181
R471	181
R472	181
R481	178
R482	178
R483	181
R484	181

SYMBOL NO.	INDEX NO.
R485	190
R486	190
R487	190
R488	190
R489	190
R490	190
R491	190
R492	190
R493	190
R494	190

SYMBOL NO.	INDEX NO.
R495	190
R497	192
R498	190
R499	190
R500	180
R501	180
R502	181
R503	181
R510	185
R511	185

SYMBOL NO.	INDEX NO.
R512	181
R513	181
R514	179
R515	172
R516	181
R524	186
R525	181
R526	190
R527	181
R528	181

SYMBOL NO.	INDEX NO.
R529	181
R530	181
R531	181
R532	181
R533	180
R534	180
R535	181
R536	181
R537	181
R538	181

SYMBOL NO.	INDEX NO.
R539	192
R540	180
R541	180
R542	180
R543	180
R544	180
R545	180
R546	180
R547	180
R548	180

SYMBOL NO.	INDEX NO.
R549	180
R550	180
R551	180
R552	180
R553	180
R554	180
R555	180
R556	180
R557	180
R558	180

51. IPU BOARD (A109)

SYMBOL NO.	INDEX NO.
R559	180
R560	180
R561	180
R562	180
R563	180

SW

SYMBOL NO.	INDEX NO.
SW300	109

TRANSISTOR

SYMBOL NO.	INDEX NO.
Q300	110
Q301	110

XTL

SYMBOL NO.	INDEX NO.
XTL300	149
XTL301	150

ZD

SYMBOL NO.	INDEX NO.
ZD300	111

M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	From 1st production
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515060001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795070001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50750001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515070181
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S115065001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S115075051

ISSUED ON: September 30, '95

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Transport Tank			
Reason for Modification	Due to parts standardization			

Due to parts standardization, the following change has been made.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1093851	A1723851	Transport Tank	1 → 1	O/O	8	73

M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	

Reissued on: January 15, '96
ISSUED ON: October 15, '95

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	OPC Drum			
Reason for Modification	To improve serviceability			

To improve serviceability, the OPC drum has been changed.
The expected yield for the new OPC drum has been extended to 80K scan.
For details, please refer to RTB No. 12.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1099510	A1729510	OPC Drum	1 → 1	O/O	16	51

M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	From next production
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515110158
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795110001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E51150001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515110261
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S115115001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	From next production

ISSUED ON: October 15, '95

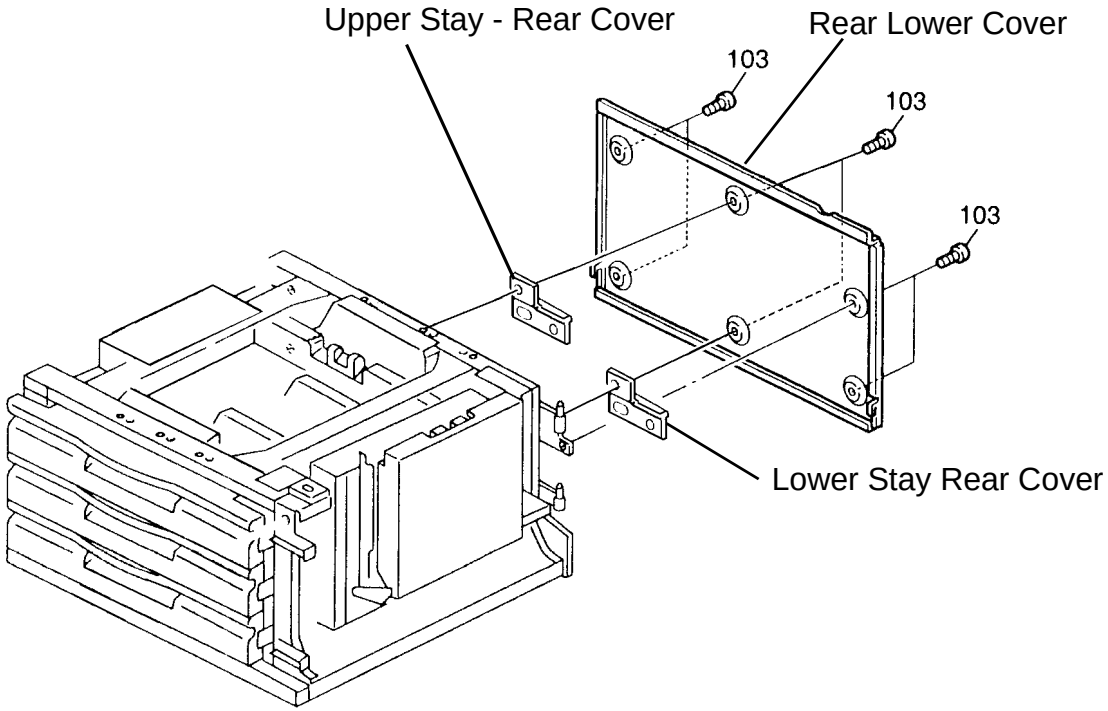
Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Rear Lower Cover			
Reason for Modification	To comply with CE Mark standards			

Draw No.	Old Parts No.		New Parts No.	Description	Rank	Q'ty Used Old→New	Inter-change-ability		Destination	Parts Catalog No.	Parts Catalog Page
	A1091364		A1097042	Rear Lower Cover		1 → 1	X/O		-17, -27	7	35
	A1097141		A1097142	Rear Lower Cover		1 → 1	X/O		-10, -22	7	35
	A1097241		A1097242	Rear Lower Cover		1 → 1	X/O		-26	7	35
	A1097341		A1097342	Rear Lower Cover		1 → 1	X/O		-57, -67	7	35
			A5131180	Upper Stay - Rear Cover		0 → 1			All	27	35
			A5131181	Upper Stay - Rear Cover		0 → 1			All	28	35
			A1661319	Push Lock		0 → 2			for old machines		

Rank: A : Replace with new parts immediately. B : Replace with new parts at time of repair. C : Replace with new parts at time of overhaul.
Interchangeability:
(1) When old and new parts are not mutually interchangeable, use additional parts or an assembly part as indicated in "Parts needed for replacement by new part" to install the new part.
(2) The mark to the left of the slash indicates whether the old part can be used in the new machine, and the mark to the right indicates whether the new part can be used in the old machine. x = Not interchangeable o = Interchangeable

DETAILS OF MODIFICATION

To comply with CE mark standards, the rear lower cover has been fixed with six screws instead of four. Upper stay - rear cover and lower stay-rear cover have been added on the machine frame to secure the two additional screws. When using the new covers on a machine without upper stay - rear cover and lower stay - rear cover, please cover the extra screw holes with P/N A1661319.



M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	From next production
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515090001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795090001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50950001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515090178
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S115095001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	From next production

ISSUED ON: October 15, '95

Model	DFC - α (-22, -26, -27, -67 machines only)	Volt/Hz	Date of Modification	Serial Number
Modified Article	Operation Panel etc.			
Reason for Modification	To comply with CE Mark standards			

Draw No.	Old Parts No.		New Parts No.	Description	Rank	Q'ty Used Old→New	Inter-change-ability		Destination	Parts Catalog No.	Parts Catalog Page
	A1097066		A1097069	Operation Panel Ass'y - A4		1 → 1	X/O		-27	*	17
	A1097166		A1097169	Operation Panel Ass'y - A4		1 → 1	X/O		-22	*	17
	A1097265		A1097269	Operation Panel Ass'y - A4		1 → 1	X/O		-26	*	17
	A1097168		A1097268	Operation Panel Ass'y - A4		1 → 1	X/O		-67	*	17
	A1095661		A1095258	Operation Panel Board - A4		1 → 1	X/O		-26, -27, -67	1	17
	A1095573		A1095268	Operation Panel Board - A4		1 → 1	X/O		-22	1	17
	A1095370		A1095396	Operation Panel Relay Harness		1 → 1	X/O		-22, -26, -27, -67	10	25
	A1095368		A1095395	Editor Relay Harness		1 → 1	X/O		-22, -26, -27, -67	30	99
	A1095371		A1095397	AC Main Harness		1 → 1	X/O		-22, -26, -27, -67	23	97
			16070418	Ferrite Core TR-28-16-14		0 → 4			-22, -26, -27, -67	105	13
			16070721	Ferrite Core TFC-23-11-14		0 → 1			-22, -26, -27, -67	105	13

Rank: A : Replace with new parts immediately. B : Replace with new parts at time of repair. C : Replace with new parts at time of overhaul.
Interchangeability:
(1) When old and new parts are not mutually interchangeable, use additional parts or an assembly part as indicated in "Parts needed for replacement by new part" to install the new part.
(2) The mark to the left of the slash indicates whether the old part can be used in the new machine, and the mark to the right indicates whether the new part can be used in the old machine. x = Not interchangeable o = Interchangeable

ISSUED ON: October 15, '95

Draw No.	Old Parts No.		New Parts No.	Description	Rank	Q'ty Used Old→New	Inter-change-ability			Parts Catalog	
									Destination	No.	Page
	A5135356		A5135398	DC Relay Harness		1 → 1	X/O		-22, -26, -27, -67	12	101
	A1091480		A1097091	Grounding Wire		2 → 2	X/O		-22, -26, -27, -67	37	17

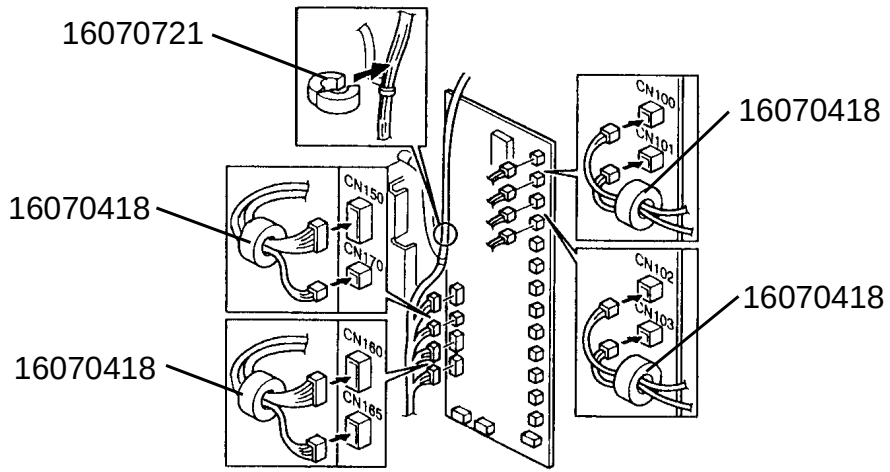
DETAILS OF MODIFICATION

To comply with CE mark standards, the following modifications have been made.

1. The operation panel PCB has been changed to a six-layer type in order to reduce the amount of electrical noise emission.

2. Electrical noise shielding has been added to the following harnesses. The shielding is done by metal mesh material wrapped around the harness, connected to the ground, and covered with plastic tape.
   Operation Panel Relay Harness (P/N A1095396)
   Editor Relay Harness (P/N A1095395)

3. Ferrite Cores have been added to the following harnesses.
   AC Main Harness (P/N A1095397)
   DC Relay Harness (P/N A5135398)
   Grounding Wire (P/N A1097091)



M. Iwasa, Manager
Technical Support Department

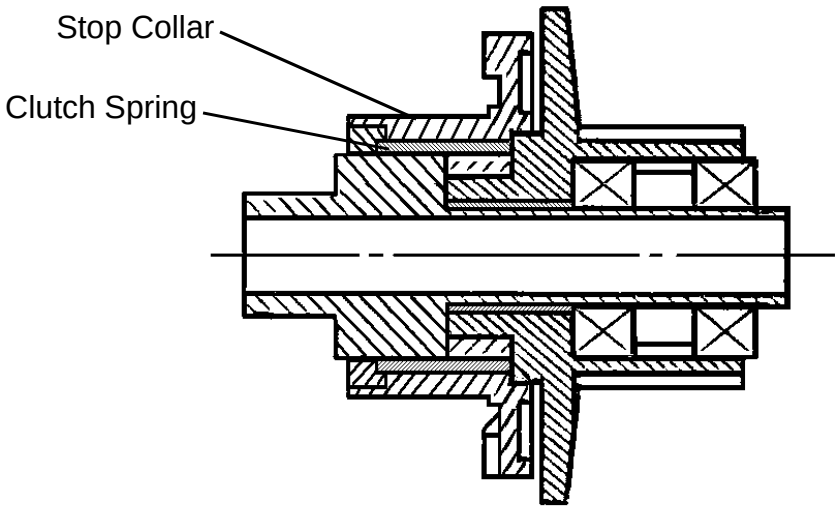
MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
~~Ges 2706 / NSA C406 / REX CC8406~~	~~115V / 60Hz~~	~~USA, CANADA~~	~~A109-10~~	
~~Ricoh NC5006~~	~~115V / 60Hz~~	~~USA, CANADA.~~	~~A109-17~~	
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795090001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50950001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515090178
~~Sharp AR-C860~~	~~115V / 60Hz~~	~~USA, CANADA~~	~~A109-57~~	
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S115095001

ISSUED ON: October 31, '95

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Transfer Belt Position Clutch			
Reason for Modification	To ensure the release and touch operation of the transfer belt.			

To ensure the operation of the transfer belt position clutch, the inside diameter of the stop collar has been made smaller. This will prevent the clutch spring from spreading too much when it is released, which may cause delay in clutch operation timing.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
AX210054	AX210055	Spring Clutch	1 → 1	X/O	27	87



M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	From next production
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515020009
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795030001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50350001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515030091
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S115065001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S115045001

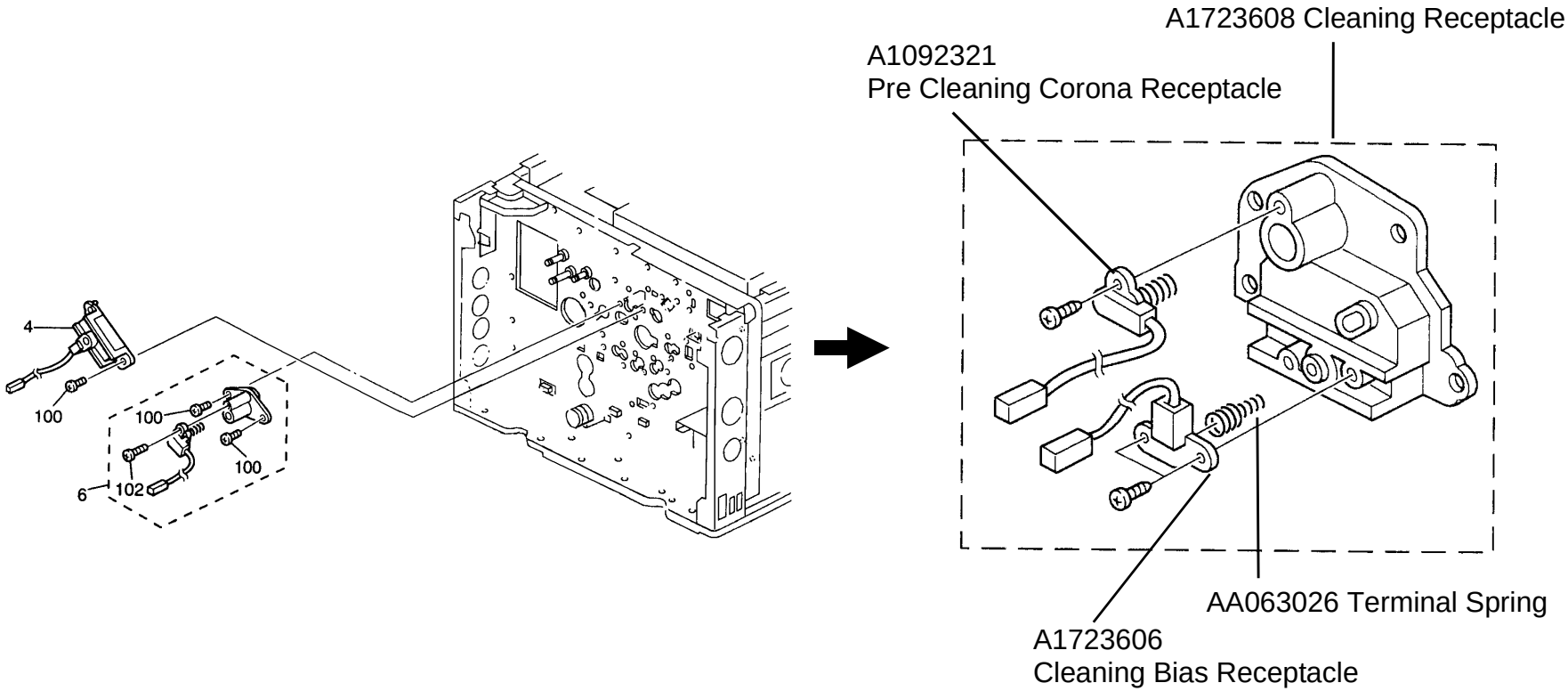
ISSUED ON: October 31, '95

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Receptacle			
Reason for Modification	Due to parts standardization			

Due to parts standardization, the cleaning bias receptacle and the pre-cleaning corona receptacle have been changed to the cleaning receptacle. The terminal spring (P/N AA063026), the pre-cleaning corona receptacle (P/N A1092321) and the cleaning bias receptacle (P/N A1723606) are the component parts of the cleaning receptacle.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1093654		Cleaning Bias Receptacle	1 → 0		4	97
A1092320		Pre Cleaning Corona Receptacle	1 → 0		6	97
	A1723608	Cleaning Receptacle	0 → 1	O/O	4, 6	97
	AA063026	Terminal Spring	0 → 1		25	97
	A1092321	Pre Cleaning Corona Receptacle	0 → 1		26	97
	A1723606	Cleaning Bias Receptacle	0 → 1		27	97

ISSUED ON: October 31, '95



M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	From next production
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515070001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795080001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50850001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515070235
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S1150750001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	From next production

ISSUED ON: October 31, '95

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Cleaning Left Stay			
Reason for Modification	Due to parts standardization			

Due to parts standardization, the Cleaning Left Stay has been changed.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1096361	A1726318	Cleaning Left Stay	1 → 1	O/O	5	75

M. Iwasa, Manager
Technical Support Department

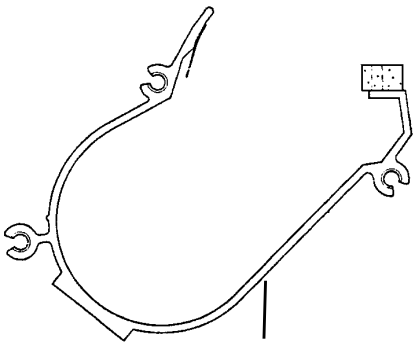
MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	

ISSUED ON: October 31, '95

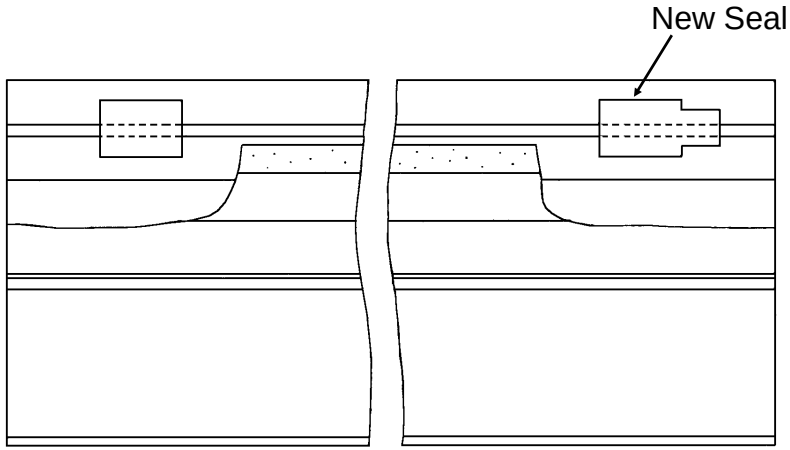
Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Black Development Seal			
Reason for Modification	To ensure that black developer returns to the development unit.			

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1093063		Black Development Seal	2 → 1		8	59
	A1093064	Black Development Seal - Rear	0 → 1	X/O	38	59

To ensure that developer stays inside the development unit when the black sleeve motor rotates to return the black developer, the shape of the black development seal on the rear side of the black development unit has been changed. The same seal on the front side of the black development unit has not been changed.



Development Casing - Black (P/N A1093059)



M. Iwasa, Manager
Technical Support Department

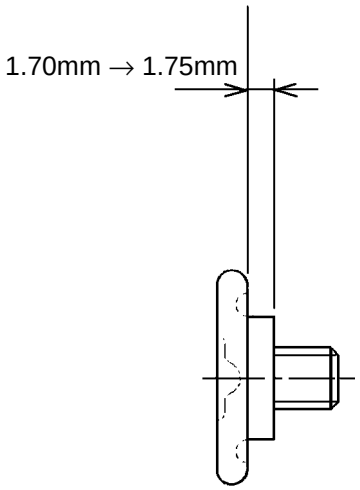
MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	From Next Production
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3514110001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6794100027
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E51140001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3514110119
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	From First Production
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	From First Production

ISSUED ON: December 31, '95

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Stepped Screw			
Reason for Modification	To ensure proper cleaning of the transfer belt			

To ensure smooth swiveling action of the transfer belt cleaning blade, the stepped screw M4 has been changed. The new stepped screw has a higher shoulder.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
5446 3648		Stepped Screw M4	2 → 1			
	AA14 3733	Stepped Screw M4	0 → 1	X/O	16	75



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Technical Support Department

ISSUED ON: December 31, '95

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	From 1st production
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515090001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795080008
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50950001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515090178
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S115105001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S115095001

ISSUED ON: January 31, '96

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Development Units		No serial number cut-in information	
Reason for Modification	Parts Standardization			

Due to parts standardization, the following parts have been changed.

The surface finishing of new and old development sleeves are different, but they are interchangeable.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
AD001032	AD001045	Development Unit - B/C	1 → 1	O/O	*	59
A1093074	A1723074	Development Sleeve Ass'y - Cyan	1 → 1	O/O	3	61
AD001033	AD001041	Development Unit - M/Y	1 → 1	O/O	*	63
A1093214	A1723214	Development Sleeve - M/Y	2 → 2	O/O	1	63

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ISSUED ON: January 31, '96

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Bypass Feed Unit			
Reason for Modification	To improve grounding			

To improve the grounding of the bypass feed unit, following modifications have been made.

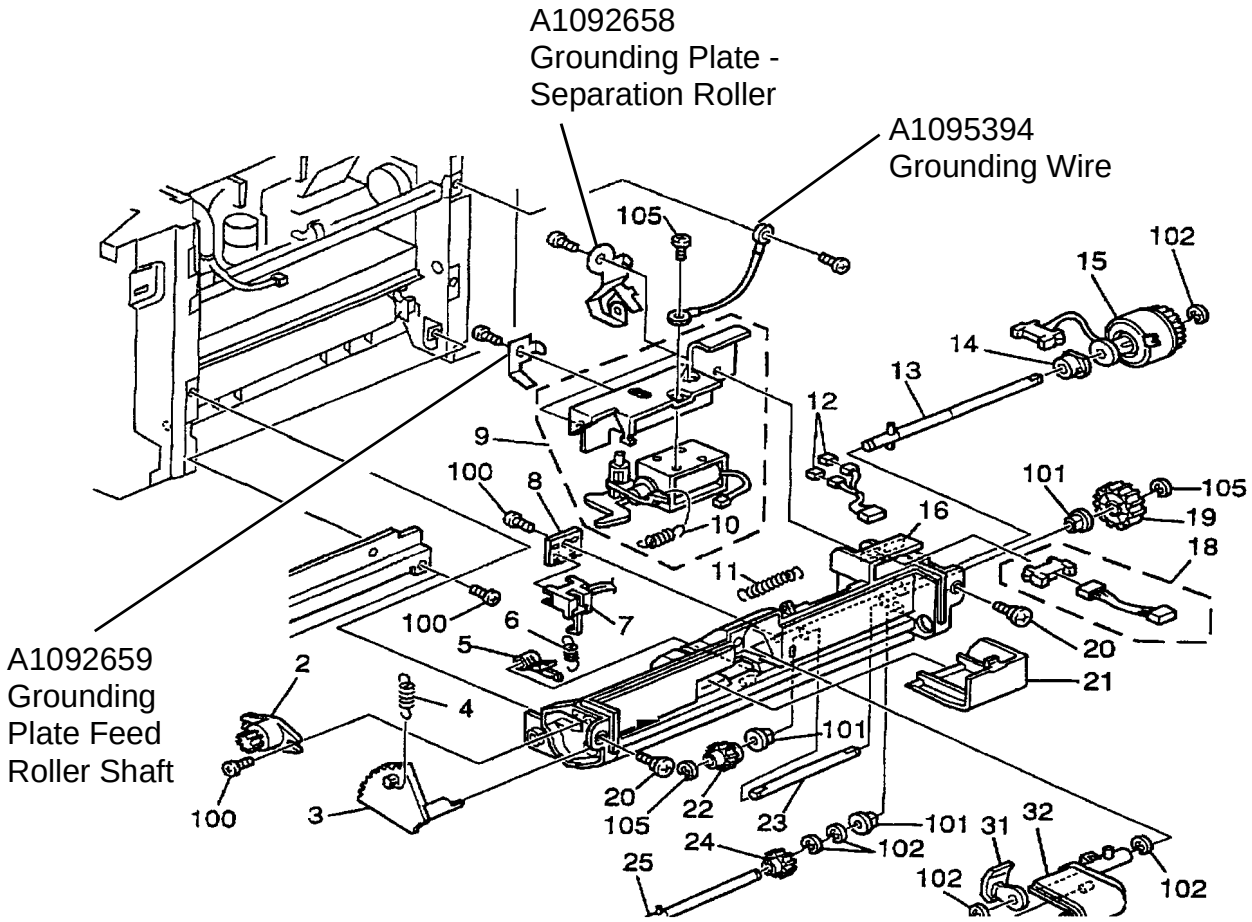
1. The Bushing - 6mm has been changed to metal bushings.

2. Two ground plates have been added.

3. A grounding wire has been added.

4. The Gasket - 50 has been removed.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
08053385	50530447	Bushing 6mm	3 → 3	X/O	101	45
	A1092658	Grounding Plate - Separation Roller	0 → 1		48	45
	A1092659	Grounding Plate - Feed Roller Shaft	0 → 1		49	45
	A1095394	Grounding Wire	0 → 1		50	45
A1095375		Gasket - 50	1 → 0		47	45



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Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515090001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795090001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50950001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515090178
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S115105001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S115095001

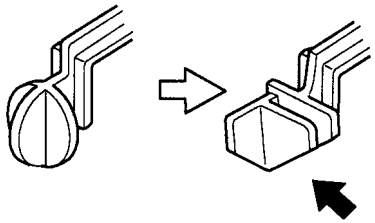
ISSUED ON: January 31, '96

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Paper End Feeler			
Reason for Modification	To ensure its operation			

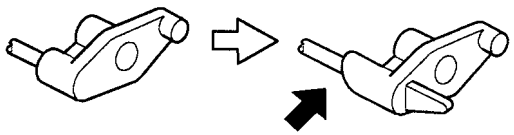
The following parts have been changed to ensure their operation.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A0966342	A0966362	Paper end Feeler	3 → 3	X/O	9	41
A0966360		Paper Flattener	6 → 3		23	41
	A0966363	Paper Flattener	0 → 3	X/O	27	41

1. Paper End Feeler
   The shape has been changed so that the feeler is more likely to be pushed up by the paper when the paper tray slides in.



2. Paper Flattener
   The paper flattener on the front side has been changed to prevent the paper from being caught when the paper tray is pulled out.



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MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515090001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795090001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50950001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515090178
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S115105001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S115095001

ISSUED ON: January 31, '95

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Bushing		No serial number cut-in information	
Reason for Modification	Vendor Change			

Due to the change of a part supplier, the part number of the following part has been changed for part control purposes.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
AA082047	AA082070	Bushing - 8 x 1 6 x 7	6 → 6	O/O	17	41

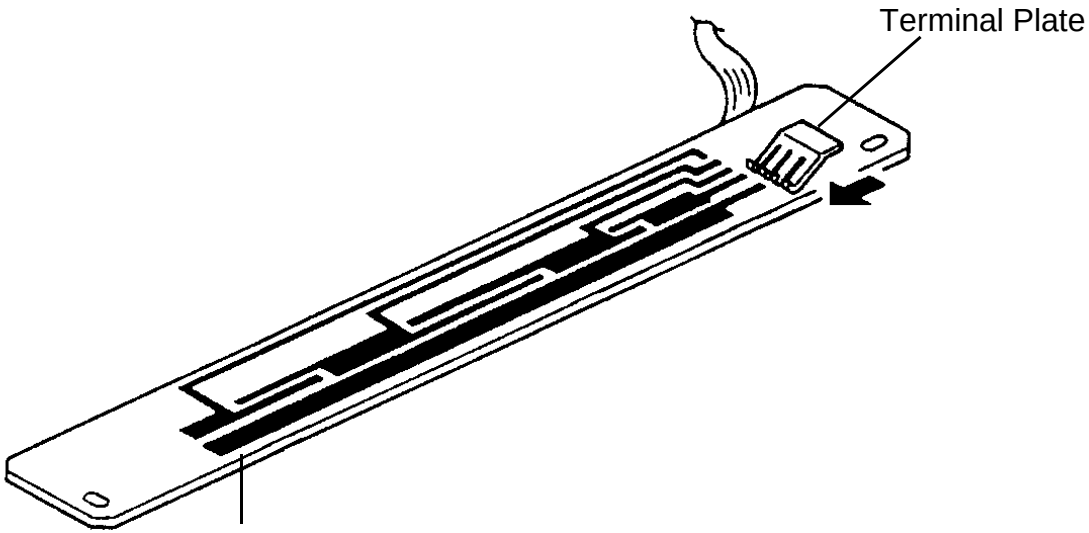
M. Iwasa, Manager
Technical Support Department

ISSUED ON: February 15, '96

Model	DFC - α (-22, -26, -27, -67 only)	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Bypass Feed Table Sensor			
Reason for Modification	To prevent mis-detection			

To prevent mis-detection of the paper size due to bad contact between the bypass feed table sensor and the terminal plate onthe bypass tray rear side fence, the pattern on the bypass feed table sensor has been nickel plated.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1095126	A1725126	Bypass Feed Table Sensor	1 → 1	X/O	40	45



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Technical Support Department

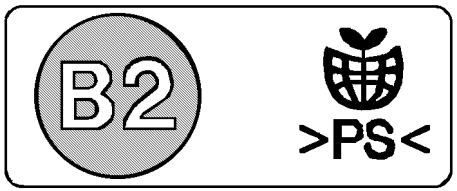
MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795120001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E51250001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515120195
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	From next production

ISSUED ON: February 15, '96

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Decal B2		No serial number information	
Reason for Modification	To add a recycle mark			

A recycle mark has been added to the decal - B2.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
AA001213	AA001377	Decal - B2	1 → 1	O/O	14	125



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MODIFICATION BULLETIN NO. 47 **PAGE 1 OF 1**

ISSUED ON: February 15, '96

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Timing Belt		No serial number information	
Reason for Modification	Parts standardization			

Due to parts standardization, the following parts have been changed.
The Timing Belt 453 S3MV has become narrower than the old part . Therefore, it must be replaced together with the pulley and the tightener.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
AA043232	AA043410	Timing Belt 699 S3MV	1 → 1	O/O	13	87
AA043233	AA043409	Timing Belt 600 S3MV	1 → 1	O/O	13	93
AA043231	AA043408	Timing Belt 453 S3MV	1 → 1	X/X O/O as a set	28	87
AB030441	AB030266	Pulley 28Z	1 → 1	X/X	11	87
A1094754	A1724754	Belt Tightener	1 → 1	X/X	31	87

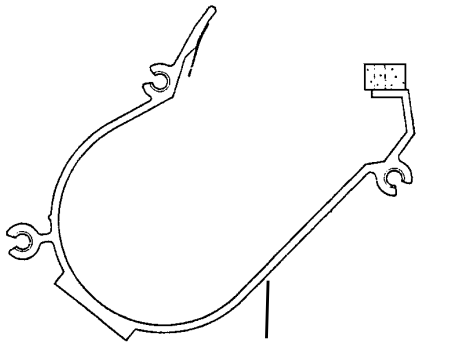
M. Iwasa, Manager
Technical Support Department

ISSUED ON: February 15, '95

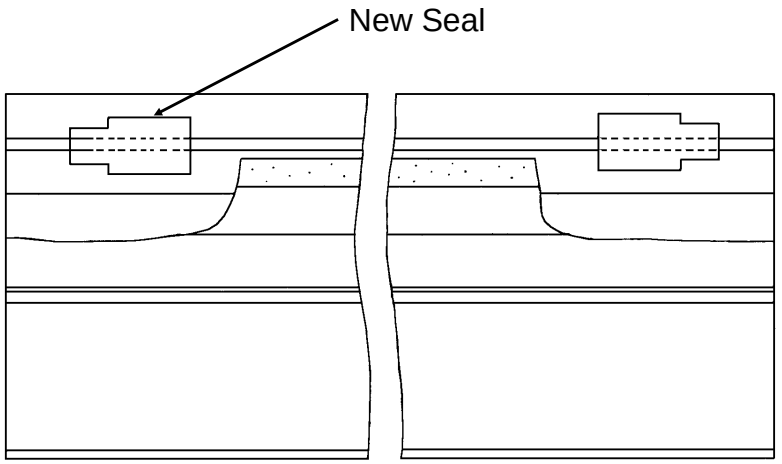
Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Black Development Seal			
Reason for Modification	To ensure that black developer returns to the development unit.			

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1093063	A1093096	Black Development Seal	1 → 1	X/O	8	59

To ensure that developer stays inside the development unit when the black sleeve motor rotates to return the black developer, the shape of theblack development seal on the front of the black development unit has been changed.



Development Casing - Black (P/N A1093059)



M. Iwasa, Manager
Technical Support Department

ISSUED ON: February 15, '95

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ges 2706 / NSA C406 / REX CC8406	115V / 60Hz	USA, CANADA	A109-10	From Next Production
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515090106
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795090022
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50950001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515090178
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S115105001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S115095001

ISSUED ON: March 31, '96

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Transport Sensor			
Reason for Modification	To prevent mis-detection.			

To prevent mis-detection especially for very dark copies, the transport sensor has been changed.
Since the new sensor is more sensitive than the old sensor, a black seal is attached to the transport spring plate to prevent malfunction. The new sensor is larger than the old sensor, so when installing a new sensor on an old machine, it is necessary to change the following parts as a set. The old parts are still available.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability		Parts Catalog	
						Index No.	Page
A1093876	A1723870	Spring Plate - Transport	1 → 1	X/O		23	109
AW010039	AW010069	Photosensor Ass'y	1 → 1	X/X	X/O as a set	19	104
A1093325	A1723325	Development Unit Base	1 → 1	X/X		16	105
A1093881	A1723881	Transport Sensor Bracket	1 → 1	X/X		18	105

DETAILS OF MODIFICATION

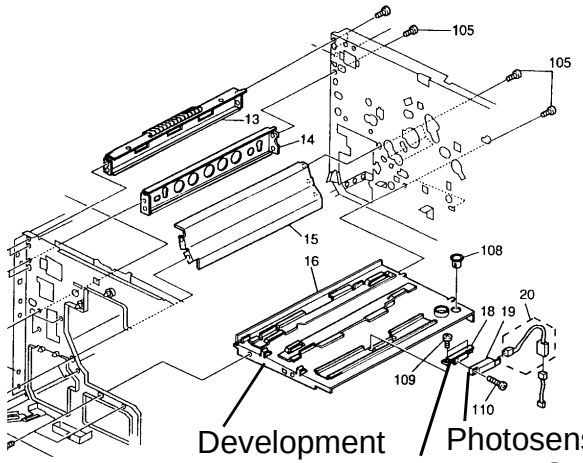
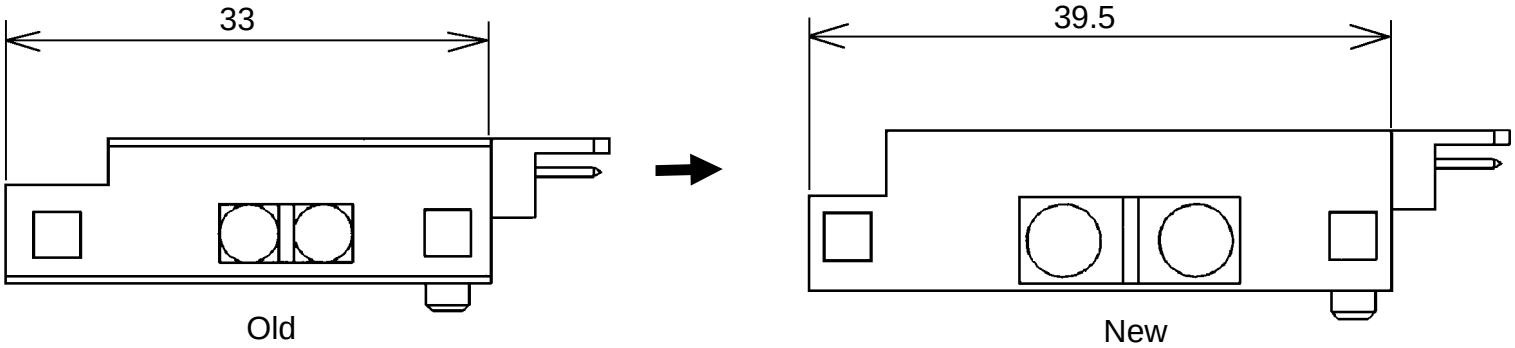
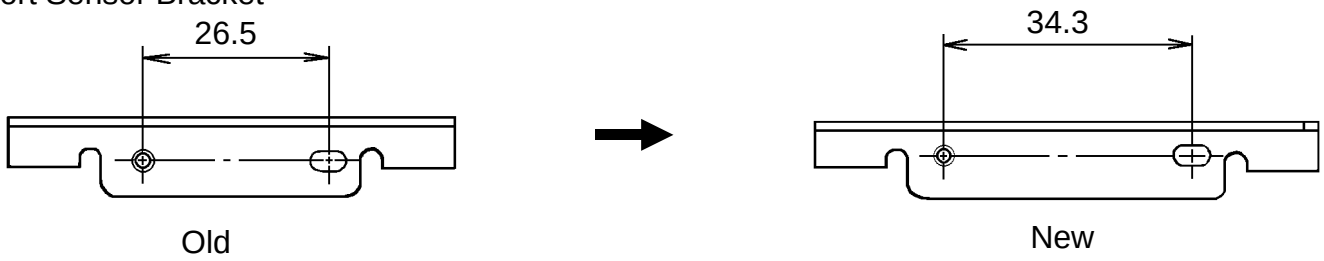


Photo Sensor Ass'y



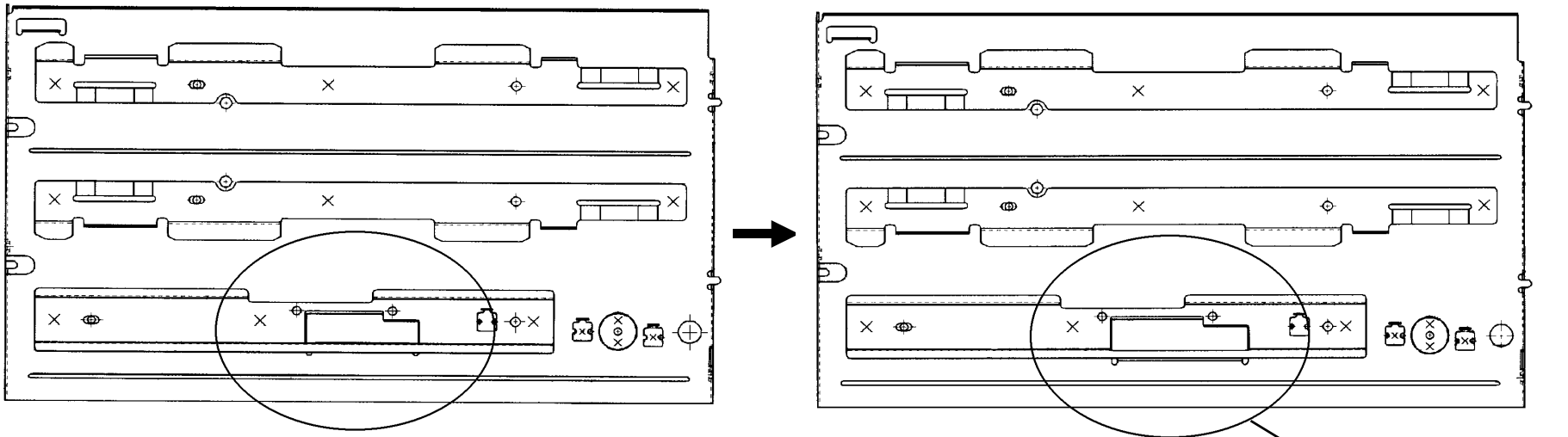
Transport Sensor Bracket



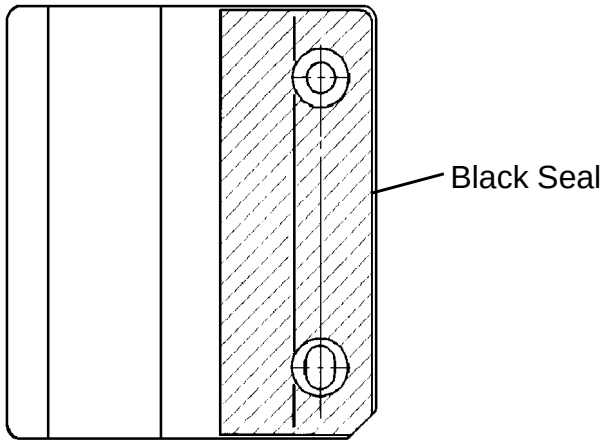
ISSUED ON: March 31, '96

DETAILS OF MODIFICATION

Development Unit Base



Spring Plate Transport



M. Iwasa, Manager
Technical Support Department

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515120001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795120001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E51250001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515120195
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S115125001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	From next production

ISSUED ON: May 31, '96

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Oscillator	No serial number cut-in information.		
Reason for Modification	Vendor change			

Due to a vendor change, the following part has been changed.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
15030540	15030520	Oscillator 37 1843Mhz	1 → 1	O/O	158	119

T. Inoue

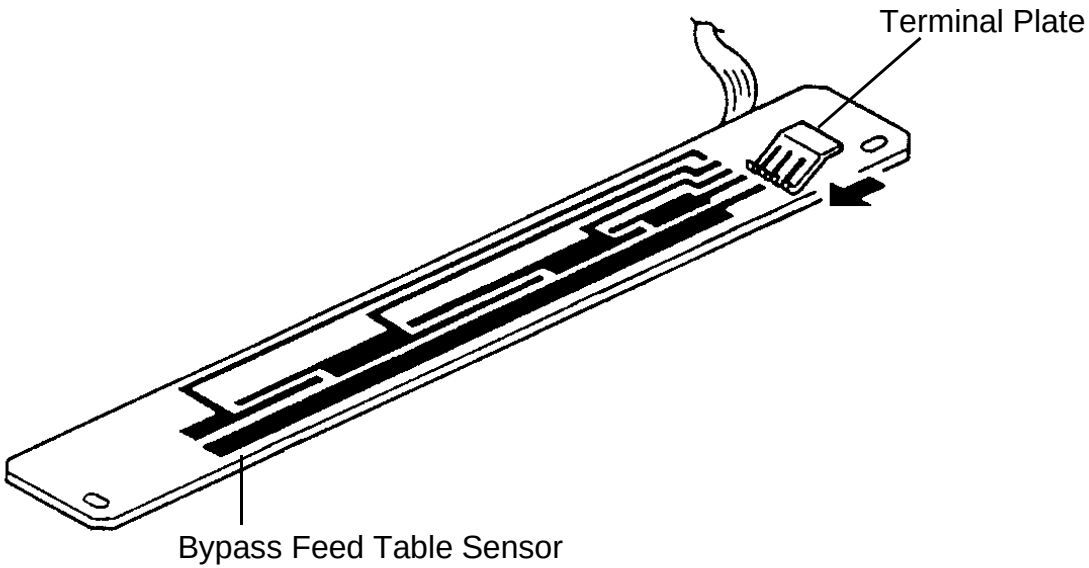
T. Inoue, General Manager
1st Field Information Dept. QAC

ISSUED ON: May 31, '96

Model	DFC - α (-10, -15, -17, -57 only)	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Bypass Feed Table Sensor			
Reason for Modification	To prevent mis-detection			

To prevent mis-detection of the paper size due to bad contact between the bypass feed table sensor and the terminal plate on the bypass tray rear side fence, the pattern on the bypass feed table sensor has been nickel plated.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1095526	A1095538	Bypass Feed Table Sensor	1 → 1	X/O	40	45



T. Inoue

T. Inoue, General Manager
1st Field Information Dept. QAC

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Savin SC106	115V / 60Hz	USA, CANADA	A109-15	5060200001
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3516010165
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE, etc.	A109-22	
Infotec 7306	230V / 50Hz	EUROPE, etc.	A109-26	
Ricoh NC 5006	230V / 50Hz	EUROPE, etc.	A109-27	
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S116025001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	

MODIFICATION BULLETIN NO. 52 **PAGE 1 OF 1**

ISSUED ON: June 15, '96

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Left Transport Roller	No serial number cut-in information.		
Reason for Modification	Due to parts standardization			

Due to parts standardization, the left transport roller has been changed.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
AF022069	AF022091	Left Transport Roller	1 → 1	O/O	4	73

T. Inoue

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1st Field Information Dept. QAC

ISSUED ON: June 15, '96

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Transport Tank	No serial number cut-in information.		
Reason for Modification	Due to parts standardization			

Due to parts standardization, the transport tank has been changed.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1723851	A1723855	Transport Tank	1 → 1	O/O	8	73

T. Inoue

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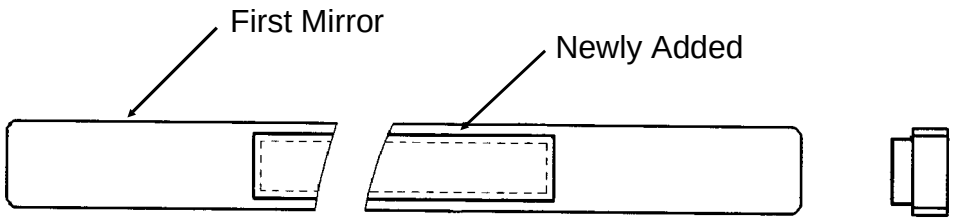
1st Field Information Dept. QAC

ISSUED ON: June 15, '96

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	First Mirror			
Reason for Modification	To prevent vibration of the first mirror			

To prevent vibration of the first mirror, a piece of glass has been attached to its back side. The vibration of the first mirror may cause mis-registration of each color image on the leading edge of a copy.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1091920	A1091924	First Mirror	1 → 1	X/O	8	21



T. Inoue

T. Inoue, General Manager
1st Field Information Dept. QAC

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3516010001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6796020001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50260001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3516020122
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S116025001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S116045046

ISSUED ON: June 15, '96

Model	DFC - α	**Volt/Hz**	**Date of Modification**	**Serial Number**
Modified Article	Screw for Optics Exhaust Fan			
Reason for Modification	To prevent interference with the fan			

The two screws fixing the Optics Exhaust Fan have been changed because the washer used for the current screw may interfere with the fan.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
09514014B		Philips Screw with Washer M4 x 4	2		107	23
	09504014B	Philips Screw Spring Washer M4 x 14	2	X/O	107	23

T. Inoue

T. Inoue, General Manager
1st Field Information Dept. QAC

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3515100001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6795100001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E51050001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3515100176
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S115105001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S115105051

ISSUED ON: June 15, '96

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	AC Main Harness			
Reason for Modification	To prevent damage to the harness			

To reduce the possibility of the AC Main Harness touching the color development drive motor, the AC main harness and the drive motor bracket have been changed.

Old P/N	New P/N	Description	Destination	Q'ty Used	Inter-change-ability	Parts Catalog	
						Index No.	Page
A109 5372	A109 5382	AC Main Harness	-15, -17, -57	1 → 1	X/X	23	97
A109 5397	A109 5399	AC Main Harness	-22, -26, -27, -67	1 → 1	X/X	23	97
A109 4752	A109 4762	Drive Motor Bracket	All	1 → 1	X/O — X/O as a set	33	87
	1105 0200	Clamp	All	0 → 1		110	87

T. Inoue

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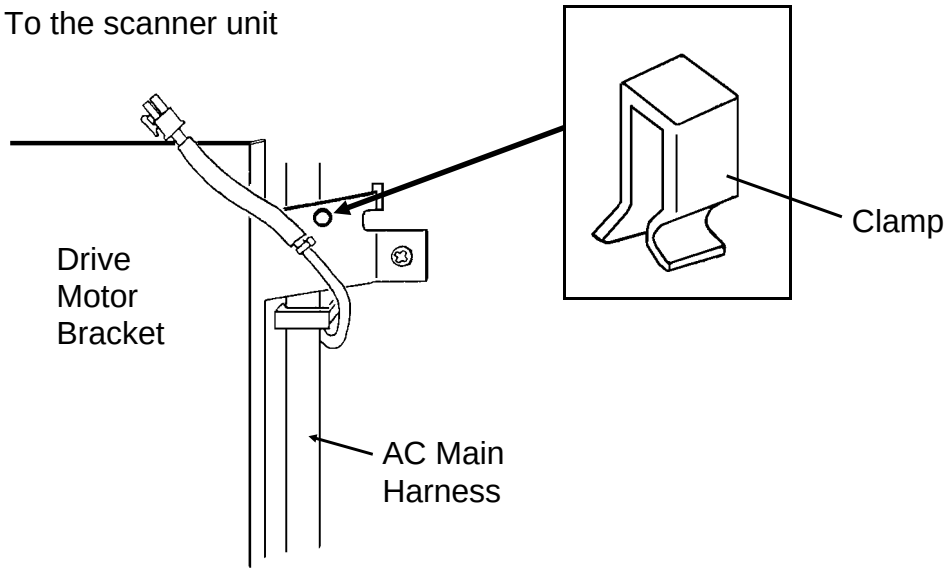
DETAILS OF MODIFICATION

With this modification, the part of AC Main Harness that goes to the scanner unit is extended and it is routed outside the drive motor bracket to prevent contact with the color development drive motor.



MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Ricoh NC5006	115V / 60Hz	USA, CANADA.	A109-17	A3516010001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6796010001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50160001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3516010166
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S116025001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S116045046

ISSUED ON: September 15, '96

Model	DFC-α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Gear 20Z / 33Z			
Reason for Modification	To improve durability			

To improve durability, the material of gear - 20Z / 33Z has been changed from plastic to metal.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
AB01 7314	AB01 7396	Gear - 20Z / 33Z	1 → 1	X/O	18	93

T. Inoue

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1st Field Information Dept. QAC

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Savin SC106	115V / 60Hz	USA, CANADA	A109-15	5060700001
Ricoh NC5006	115V / 60Hz	USA, CANADA	A109-17	A3516060084
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6796080001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	From next production
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3516070071
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S116095001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S116075001

ISSUED ON: September 15, '96

Model	DFC-α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Toner Tank Stopper			
Reason for Modification	To improve the durability			

To improve the durability of the toner tank stopper, the following three parts have been changed.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A049 3292	A172 3475	Tank Unit Stopper	1 → 1	X/X	14	55
A109 3437	A172 3437	Latch Bracket - Toner Tank	1 → 1	X/X x/o as a set	2	103
A049 3282	A172 3474	Latch	1 → 1	X/X	3	103

T. Inoue

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MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Savin SC106	115V / 60Hz	USA, CANADA	A109-15	5060500001
Ricoh NC5006	115V / 60Hz	USA, CANADA	A109-17	A3516050001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6796050001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50560001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3516050216
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S116055001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S116065001

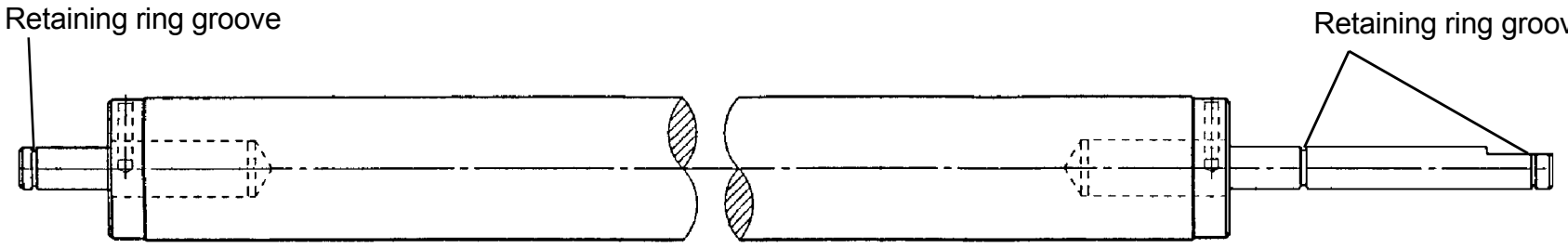
ISSUED ON: September 15, '96

Model	DFC-α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Fusing Cleaning Roller			
Reason for Modification	To prevent breaking at the retaining ring grooves			

To prevent the fusing cleaning roller from breaking at the retaining ring grooves, the diameter of t he grooves has been enlarged from 4mm to 5mm.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
AE04 2004	AE04 2022	Fusing Cleaning Roller	1 → 1	X/X	6	85
0720 0040E		Retaining Ring - M4	n → n-3	X/X x/o as a set	101	85
	0720 0050B	Retaining Ring - M5	n → n+3			

DETAILS OF MODIFICATION



T. Inoue

T. Inoue, General Manager
1st Field Information Dept. QAC

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Savin SC106	115V / 60Hz	USA, CANADA	A109-15	5060500001
Ricoh NC5006	115V / 60Hz	USA, CANADA	A109-17	A3516050001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6796050001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50560001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3516050216
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S116055001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S116065001

MODIFICATION BULLETIN NO. 60 **PAGE 1 OF 1**

ISSUED ON: September 15, '96

Model	DFC-α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Fusing Unit	No serial number cut-in information		
Reason for Modification	Due to a vendor change, the part number of the fusing unit has been changed.			

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Destination	Parts Catalog	
						Index No.	Page
A109 7702	A109 7742	Fusing Unit 115V	1 → 1	O/O	-15, -17	*	78, 81, 83, 85
A109 7703	A109 7743	Fusing Unit 230V	1 → 1	O/O	-27	*	78, 81, 83, 85
A109 7704	A109 7744	Fusing Unit 115V	1 → 1	O/O	-10	*	78, 81, 83, 85
A109 7705	A109 7745	Fusing Unit 230V	1 → 1	O/O	-22	*	78, 81, 83, 85
A109 7706	A109 7746	Fusing Unit 230V	1 → 1	O/O	-26	*	78, 81, 83, 85

T. Inoue

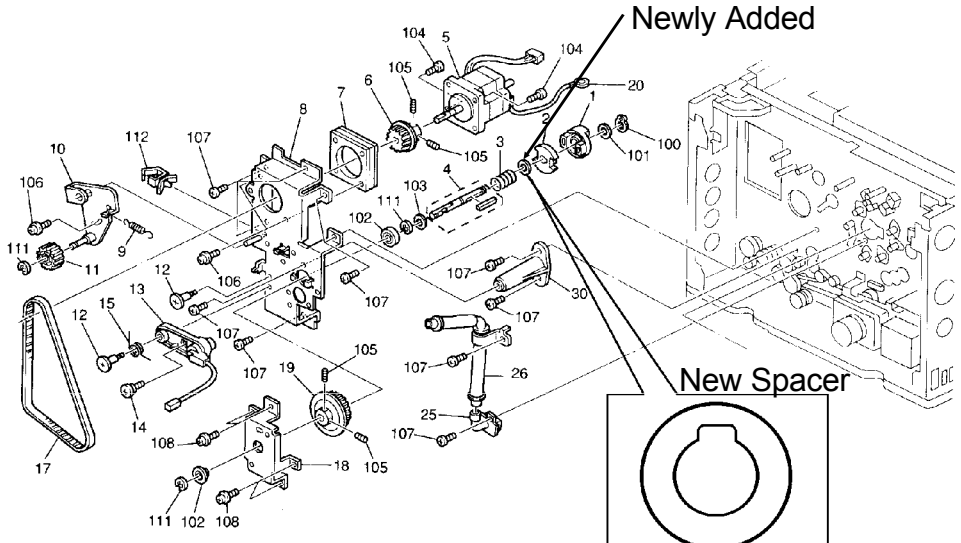
T. Inoue, General Manager
1st Field Information Dept. QAC

ISSUED ON: September 15, '96

Model	DFC-α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Spacer			
Reason for Modification	To prevent noise			

To prevent the noise generated by the contact between the pressure spring (P/N AA06 3359) and the re ar joint transfer belt (P/N A109 4675), a spacer has been added between these two parts.

New P/N	Description	Q'ty Used	Parts Catalog	
			Index No.	Page
A172 4680	Spacer	0 → 1	31	91



T. Inoue, General Manager
1st Field Information Dept. QAC

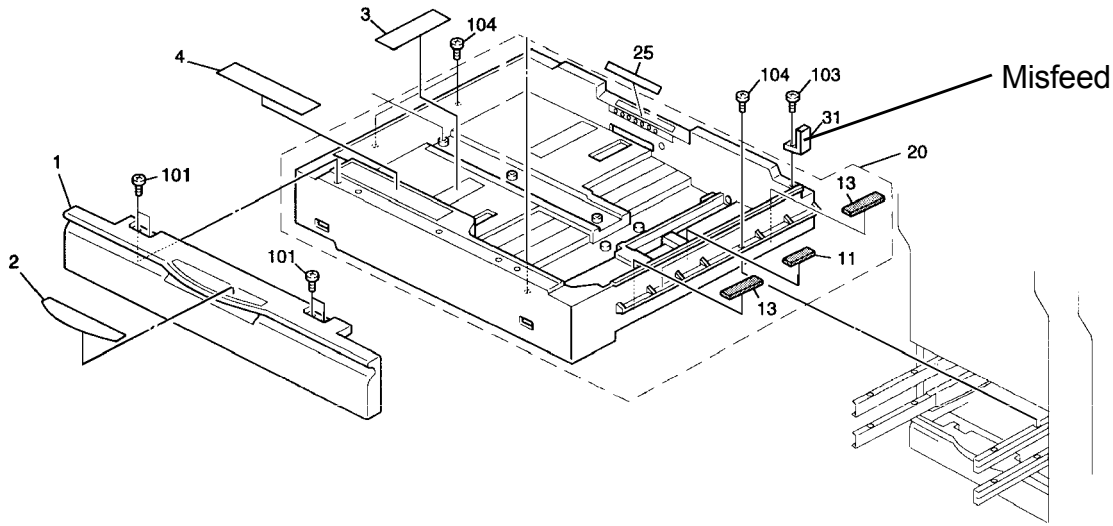
MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Savin SC106	115V / 60Hz	USA, CANADA	A109-15	5060500001
Ricoh NC5006	115V / 60Hz	USA, CANADA	A109-17	A3516050001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6796050001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50560001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3516050216
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S116055001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S116065001

ISSUED ON: September 15, '96

Model	DFC-α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Misfeed Removal Guide			
Reason for Modification	To prevent jammed paper from falling behind the paper tray.			

To prevent jammed paper from falling behind the paper tray, a misfeed removal guide has been added.

New P/N	Description	Q'ty Used	Parts Catalog	
			Index No.	Page
A176 6695	Misfeed Removal Guide	0 → 3	31 19	31 33



T. Inoue

T. Inoue, General Manager
1st Field Information Dept. QAC

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Savin SC106	115V / 60Hz	USA, CANADA	A109-15	5060500009
Ricoh NC5006	115V / 60Hz	USA, CANADA	A109-17	A3516050051
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6796060001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	From next production
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3516050243
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S116095001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S116065001

ISSUED ON: September 15, '96

Model	DFC-α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Belt Support Roller			
Reason for Modification	To prevent toner from falling on the paper.			

To ensure that the transfer belt is pressed against the transfer belt cleaning unit entrance seal, and to prevent toner from falling on the paper, the diameter of the belt support roller has been inc reased by 1.5 mm.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A109 6157	A172 6157	Belt Support Roller	1 → 1	X/O	22	67

T. Inoue

T. Inoue, General Manager
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MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Savin SC106	115V / 60Hz	USA, CANADA	A109-15	5060400001
Ricoh NC5006	115V / 60Hz	USA, CANADA	A109-17	A3516040001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6796040001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50460001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3516040126
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S116045001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S116045046

ISSUED ON: September 15, '96

Model	DFC-α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Side Fence Pad			
Reason for Modification	For better adhesion			

For better adhesion, the double-sided tape on the pad has been extended to the edges.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A0297904		Pad - CFF				
	A0966554	Side Fence Pad	1 → 1	X/O	4	33

T. Inoue

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MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Savin SC106	115V / 60Hz	USA, CANADA	A109-15	5060100024
Ricoh NC5006	115V / 60Hz	USA, CANADA	A109-17	A3516010001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6796020001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E50260001
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3516020122
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S116025001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S116045046

ISSUED ON: September 15, '96

Model	DFC-α	Volt/Hz	Date of Modification	Serial Number
Modified Article	OPC Drum			
Reason for Modification	To prevent insufficient cleaning			

The OPC drum has been returned to P/N A109 9510, since P/N A172 9510 may cause insufficient cleaning or vibrating noise. The PM cycle has been returned to 40K scans.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A1729510	A1099510	OPC Drum	1 → 1	X/O	16	51

T. Inoue

T. Inoue, General Manager
1st Field Information Dept. QAC

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Savin SC106	115V / 60Hz	USA, CANADA	A109-15	50608XXXXX
Ricoh NC5006	115V / 60Hz	USA, CANADA	A109-17	A3516080001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6796080001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E5086XXXX
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3516080106
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S116095001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S116085001

ISSUED ON: September 15, '96

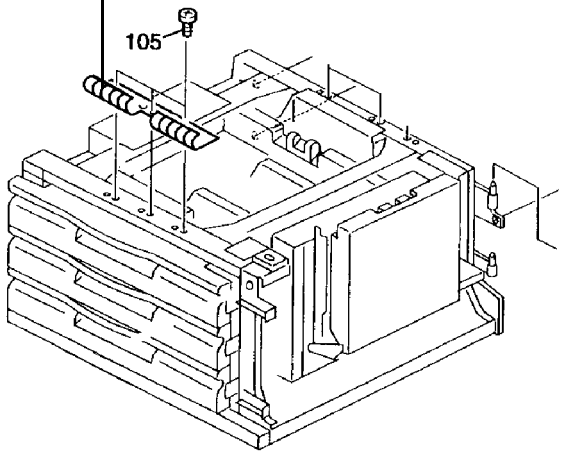
Model	DFC-α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Grounding Plate			
Reason for Modification	To improve grounding			

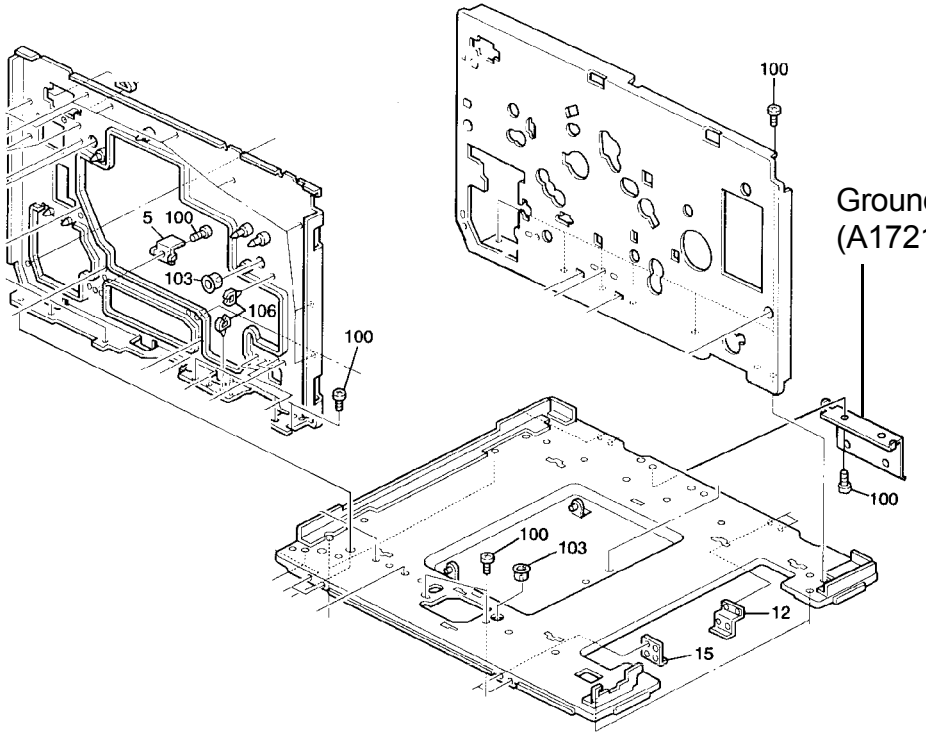
To improve grounding for the lower part of the copier, the three spring plates on the front side of the copier have been replaced with the grounding plate (A1531185). Also, a grounding plate (A172 1151) has bee n added at the rear of the copier.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A027 1673		Spring Plate	6 → 3		6	35
	A513 1185	Grounding Plate	0 → 1	X/O		
	A172 1151	Grounding Plate	0 → 1		24	109
	0434 0080B	Philips Tapping Screw M4 x 8	n → n+4		100	109

DETAILS OF MODIFICATION

Grounding Plate (A513 1185)





T. Inoue

T. Inoue, General Manager
1st Field Information Dept. QAC

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Savin SC106	115V / 60Hz	USA, CANADA	A109-15	5060600001
Ricoh NC5006	115V / 60Hz	USA, CANADA	A109-17	A3516060001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	6796060001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E5076XXXX
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3516060135
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S116095001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S116065001

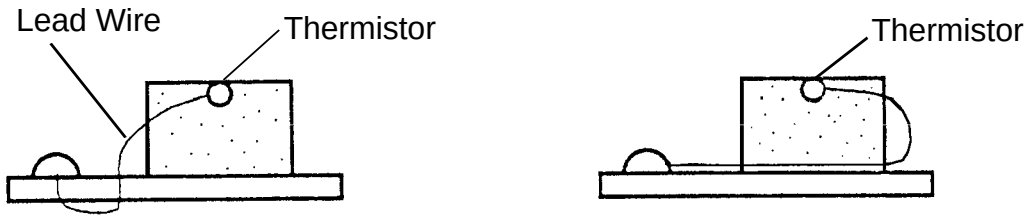
ISSUED ON: October 31, '96

Model	DFC - α	Volt/Hz	Date of Modification	Serial Number
Modified Article	Pressure Roller Thermistor			
Reason for Modification	To improve durability			

To improve durability, the pressure roller thermistor has been changed.

Old P/N	New P/N	Description	Q'ty Used	Inter-change-ability	Parts Catalog	
					Index No.	Page
A109 5405	A172 5406	Pressure Roller Thermistor	1 → 1	X/O	2	83

The lead wire of the thermistor may get broken by vibration. To absorb this vibration, routing of the lead wire has been made looser.



OLD NEW

T. Inoue

T. Inoue, General Manager
1st Field Information Dept. QAC

MODEL NAME	V/Hz	DESTINATION	CODE	SERIAL NUMBER
Savin SC106	115V / 60Hz	USA, CANADA	A109-15	5060700001
Ricoh NC5006	115V / 60Hz	USA, CANADA	A109-17	A3516060001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109-22	679607XXXX
Infotec 7306	230V / 50Hz	EUROPE etc.	A109-26	3E5076XXXX
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109-27	A3516070071
Sharp AR-C860	115V / 60Hz	USA, CANADA	A109-57	S116095001
Sharp AR-C860	230V/ 50Hz	EUROPE	A109-67	S116075001

RICOH

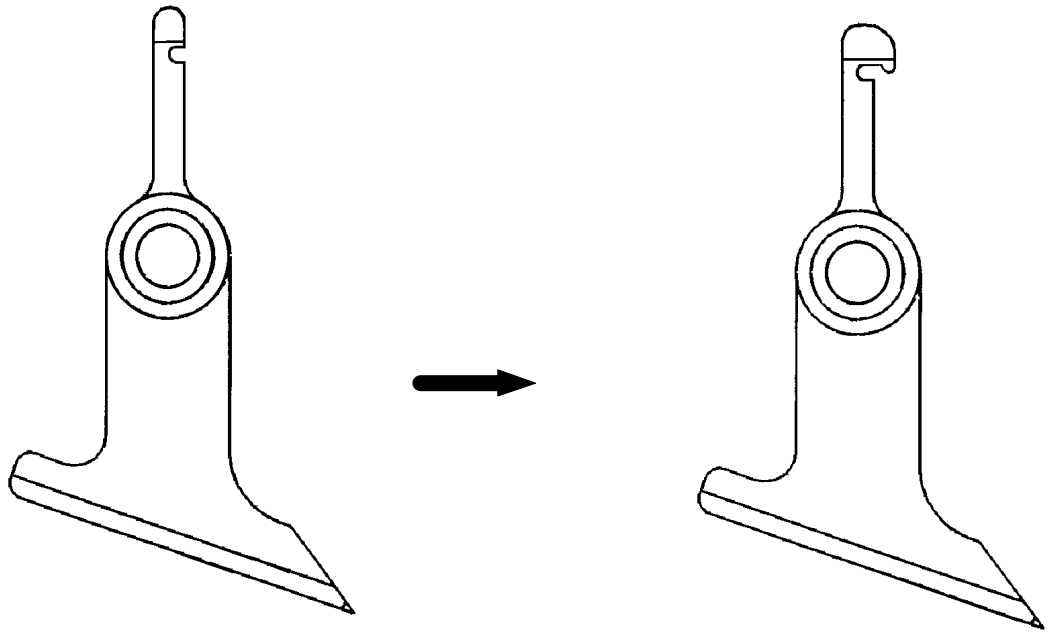
Modification Bulletin

Model: DFC-α	Date: 31-Mar-97	No:68	1/2
Modified Article: Hot Roller Stripper		Prepared by: N. Kaiya	
From: QAC 1st Field Information Dept.		Checked by: T. Inoue T. Inoue	

Reason for Modification:	☐ Parts catalog correction	☐ Vendor change	☐ To meet standards ( )
	☐ To facilitate assembly	☐ To improve reliability	
	☐ Part Standardization	☒ Other	

Old part number	New part number	Description	Qty	Int	Page	Index
AE04 4016	AE04 4023	Hot Roller Stripper	6 - 6	X/O	79	9

To prevent the spring from coming off, the hook of the hot roller stripper has been extended.



Old

New

RICOH

Modification Bulletin

Model: DFC-α	Date: 31-Mar-97	No: 68	2/2

MODEL NAME	V/ Hz	DESTINATION	CODE	SERIAL NUMBER
Savin SC106	115V / 60Hz	USA, CANADA	A109- 15	50701xxxx
Ricoh NC5006	115V / 60Hz	USA, CANADA	A109- 17	A3517010001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109- 22	6797020001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109- 26	3E5701xxxx
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109- 27	A351701xxxx
Sharp AR- C860	115V / 60Hz	USA, CANADA	A109- 57	S11701xxxx
Sharp AR- C860	230V/ 50Hz	EUROPE	A109- 67	S11701xxxx

RICOH Modification Bulletin

Model: DFC-α	Date: 15-Apr-97	No: 69
Modified Article: AC Drive Board	Prepared by: N.Kaiya	
From: QAC 1st Field Information Dept.	Checked by: T. Inoue	

Reason for Modification:

- ☐ Parts catalog correction
- ☐ Vendor change
- ☐ To meet standards ( )
- ☐ To facilitate assembly
- ☐ To improve reliability
- ☒ Part standardization
- ☐ Other

Old part number	New part number	Description	Qty	Int	Destination	Page	Index
A1095471	A1725471	AC Drive Board - 115V	1-1	O/O	-10,-15,-17,-57	27	15
A1095671	A1725671	AC Drive Board - 230V	1-1	O/O	-22,-26,-27,-67	27	15

RICOH Modification Bulletin

Model: DFC-α	Date: 15-Apr-97	No: 70
Modified Article: Relay Harness - Brush Motor	Prepared by: .N.Kaiya T. Inoue	
From: QAC 1st Field Information Dept.	Checked by: T. Inoue	

Reason for Modification:

- ☐ Parts catalog correction
- ☐ Vendor change
- ☐ To meet standards ( )
- ☐ To facilitate assembly
- ☐ To improve reliability
- ☒ Part standardization
- ☐ Other

Old part number	New part number	Description	Qty	Int	Destination	Page	Index
A1095315	A1725315	Relay Harness - Brush Motor	1-1	O/O		95	22

RICOH Modification Bulletin

Model: DFC-α	Date: 15-Apr-97	No: 71
Modified Article: Separation Roller Stay	Prepared by: N.Kaiya T. Inoue	
From: QAC 1st Field Information Dept.	Checked by: T. Inoue	

Reason for Modification:

- ☐ Parts catalog correction
- ☐ Vendor change
- ☐ To meet standards ( )
- ☐ To facilitate assembly
- ☐ To improve reliability
- ☒ Part standardization
- ☐ Other

Due to parts standardization, the following parts have been changed.

Since the location of the position sensor bracket on which the separation roller stay is installed has been moved 5mm toward the rear, please replace the 3 parts listed below at the same time. The old parts are not available.

Old part number	New part number	Description	Qty	Int	Destination	Page	Index
A0966303	A1766303	Separation Roller Stay	3-3	X/X		43	20
A0966338	A1766338	Separation Guide	3-3	X/X		43	3
A0966337	A1766337	Paper Feed Guide	3-3	X/X		41	14

The interchangeability is o/o as a set.

MODEL NAME	V/ Hz	DESTINATION	CODE	SERIAL NUMBER
Savin SC106	115V / 60Hz	USA, CANADA	A109- 15	Service parts only
Ricoh NC5006	115V / 60Hz	USA, CANADA	A109- 17	A3516110001
Ges 2706 / NSA C406 / REX CC8406	230V / 50Hz	EUROPE etc.	A109- 22	6797020001
Infotec 7306	230V / 50Hz	EUROPE etc.	A109- 26	Service parts only
Ricoh NC 5006	230V / 50Hz	EUROPE etc.	A109- 27	Service parts only
Sharp AR- C860	115V / 60Hz	USA, CANADA	A109- 57	Service parts only
Sharp AR- C860	230V/ 50Hz	EUROPE	A109- 67	Service parts only

RICOH Modification Bulletin

Model: DFC- α	Date: 15-Apr-97	No: 72
Modified Article: Original Sensor	Prepared by: N.Kaiya T. Inoue	
From: QAC 1st Field Information Dept.	Checked by: T. Inoue	

Reason for Modification:

- ☐ Parts catalog correction
- ☐ Vendor change
- ☐ To meet standards ( )
- ☐ To facilitate assembly
- ☐ To improve reliability
- ☒ Part standardization
- ☐ Other

Old part number	New part number	Description	Qty	Int	Destination	Page	Index
AW010033	AW010047	Original Sensor H=3-50	1-1	O/O	———	23	6

RICOH

Modification Bulletin

Model: DFC-α	Date: 15-Oct-98	No.: 73

Modified Article: Fusing Unit (-57, -67 models only)			Prepared by: N. Kaiya
From: GTS and S Field Information Dept.			
Reason for Modification:	☐ Parts catalog correction ☐ To facilitate assembly ☐ Part standardization	☐ Vendor change ☐ To improve reliability ☒ Other	☐ To meet standards ( )

To facilitate assembly, some minor modifications have been made to the fusing unit. The part number has been changed since the old part number's suffix was already "Z". The interchangeability of the new and the old unit is o/o.

Old part number	New part number	Description	Qty	Int	Page	Index	Destination
A1097771	A1097776	Fusing Unit - 115V	1-1	o/o	79	*	- 57 only
A1097772	A1097777	Fusing Unit – 220V	1-1	o/o	79	*	- 67 only

RICOH

Modification Bulletin

Model: DFC-alpha	Date: 15-Aug-99	No.: MA109074

Modified Article: Touch Panel			Prepared by: N.Kaiya
From: Technical Service Dept., GTS Division			
Reason for Modification:	☐ Parts catalog correction ☐ To facilitate assembly ☐ Part standardization	☒ Vendor change ☐ To improve reliability ☐ Other	☐ To meet standards ( )

Due to a vendor change, the touch panel has been changed as follows.

Old part number	New part number	Description	Q'ty	Int	Page	Index	Note
AW500016	AW500020	Touch Panel	1-1	o/o	17	8	